

THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

I KNOW OF NO PURSUIT IN WHICH MORE REAL AND IMPORTANT SERVICES CAN BE RENDERED TO ANY COUNTRY, THAN BY IMPROVING ITS AGRICULTURE.—Wash.

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THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

Look out for another Panic.

The New-York Times gives the following statement of the amount of duties paid in the district of N. York, during the first quarter of 1838, and the first quarter of 1839:

1838,	\$2,407,755 78
1839,	4,309,500 21

Difference,

Now, if we assume this as a criterion for the three coming quarters of the year, it will give an aggregate of \$7,606,972.72, as the amount of duties upon foreign importations, paid in the district of New-York, in 1839, over and above what was paid upon the like importations in 1838. This immense sum of seven and a half millions of dollars, the reader will bear in mind, is not the cost of the foreign articles we import, but merely the duty which is exacted by our laws on their introduction into our country. And if we consider that almost every foreign article not coming in competition with our own manufactures, is imported duty free; and that many other articles pay merely a nominal duty, we may with safety assume, that the duties payable at the custom-house do not amount to more than one-tenth of the cost of the foreign merchandise imported. We arrive, then, at this result, that the foreign goods imported into New-York during the present year, will exceed in amount the importations of 1838, SEVENTY-SIX MILLIONS OF DOLLARS!!!

And who is to foot the bill?—who is to pay the balance? Here is an extra charge against us, in a single port, of seventy-six millions of dollars, in a great measure for articles which we can either produce within ourselves, or do without. We may boast of this as an era of commercial prosperity—we may boast that it fills the coffers of our national treasury—but we cannot conceal the apprehension, that it is pregnant with future and direful evils to our country; that it is the prelude to another commercial panic, more dreadful in its effects than the one from which we are just recovering. Really, we are getting commercially mad. Like the reckless spendthrift, we are cumbering our patrimonial inheritance, entailing upon our posterity a ruinous debt, and compromising our independence as a nation, from a vain ostentation of buying what we do not want, or what at all events we are unable to pay for.

We repeat the question—By whom and how is this seventy-six millions of dollars to be paid? Paid it must be, if we would sustain our character for honesty and fair dealing. The total amount of our exports is but a little over one hundred millions—some millions less than our imports of last year; and according to the data we have assumed, they are likely to fall short of the imports of the current year from fifty to a hundred millions of dollars. Our state stocks have, to the amount of one hundred and seventy millions, been already sent abroad towards paying old balances; some considerable portion of our bank stock has been employed for a like purpose; and, abstracting the exports of cotton, exclusively the production of the south, our exportations will not pay a tithe of the rapidly accumulating debt.

What does this state of things augur to our manufacturing and agricultural interests? This seventy-six millions of foreign merchandise has and will be spread over our country, and must and will be sold, though at a sacrifice to the holders; and supplant, in no small degree, the sales of domestic goods. Our manufacturers will consequently become cramped; their business will be contracted; many mills be stopped, and many failures ensue. The evils to the agriculturist will be, the loss of the market, to the manufacturer, of his provisions and raw materials, a diminution in their price, and a participation in the evils of another commercial panic.

Our anticipations may not be realized; yet the facts upon which they are founded, are such as should put every prudent man on his guard—as should render him cautious of running in debt, particularly for foreign merchandize, and as should induce him, in all cases where it is practicable without a great sacrifice, to give a preference to domestic over foreign productions. The patriots of our revolution could forego the use of foreign goods, and their wives and daughters the use of their favorite beverage, tea, for their country's good. The sons surely have not so degenerated, as to be unwilling to adopt, in part, to maintain their independence, that policy which their fathers employed to achieve it.

Academies and High Schools.

From the school returns of Massachusetts, it would seem that the tendency of academies and high schools, in the towns where they are established, has been seriously to impair the patronage, and lessen the benefits of the common schools, by compelling the districts, for want of funds, to employ inferior teachers at small salaries. "Where established," says the secretary of the board of education, "private schools and academies tend strongly to diminish the annual appropriations for common schools; they draw their ablest recruits from the common schools, and by being able to offer a higher compensation, they have a pre-emptive right to the best qualified teachers; while simultaneously the district schools are reduced in length, deteriorated in quality, and to the same extent bereft of talents competent for their instruction."

The same influence upon the character and usefulness of our common schools is felt in New-York, from the rapid increase of academies and select schools among us. These high schools are patronized and supported by the wealthy; and the effect is not only to withdraw their patronage from the common schools; but, what is of perhaps greater consequence, their care and influence also. And it has become a serious question, whether the character and usefulness of our academies are not impaired by an unreasonable multiplication of them—whether more good, to the pupils and the public, would not result from half than from the whole of them. They are designed to teach classical literature, science and the higher branches of an English education; but their multiplied numbers has so divided and cut up the public patronage, that even with the aid of the literature fund, but a small portion of them are able to obtain the library, the apparatus, or the teachers, which are necessary to carry out the objects of the establishment. The consequence is, that their teachings are more in name than in substance; with this further disadvantage, that as they profess to give higher qualifications of usefulness to the pupils than common schools, and are considered the exclusive avenues to the learned professions—to fame and fortune, they absolutely spoil many boys, by inflating without enriching their minds, who otherwise might have been more useful and more respectable, in the more humble, but not less honorable, employments of life.

Let us not be understood as wishing to disparage the higher branches of learning which are taught in classical schools. We are the avowed and decided advocate of the higher studies. But we would not teach them exclusively to the few, to the prejudice of the many. We would not unnecessarily multiply academies for the professions, already overstocked, to the prejudice of common schools, which are more particularly for the farming and mechanical classes. We would not pull down the high, but we would raise the humble to their level, by giving them those attainments which would serve to improve their condition in business and society. There is not a doubt in our minds, that the teachings of the higher branches of education, embracing the principles of natural science, chemistry and mechanics, would be of far more service to the community, if taught and applied to the arts of productive labor, than they can be to the learned professions.

Under this view of the subject, we consider Secretary Mann correct in saying, that high schools and academies, when multiplied to the extent they now are, are injurious to the cause of common school education. Were the patronage and influence which are now given to the high schools, brought to co-operate with the patronage and influence exerted in the school districts, and the munificent appropriations of the legislature, for competent teachers and district libraries, we have not a doubt that many of our common schools might be raised, in character, to the common standard of academies, and greatly to excel many of the latter in usefulness—because their benefits would be imparted to a whole community, to the producing, as well as to the non-producing classes. It is a principle which cannot too often be inculcated, that the prosperity and happiness of the individual, depends materially upon the intelligence, industry and thrift of the district.

Horticultural Report.

Report of the second exhibition of the Horticultural Association of the Valley of the Hudson.

The second semi-annual exhibition of the Horticultural Society of the Valley of the Hudson was held at Stanwix Hall, Albany, on the 25th and 26th of June.

The committee could scarcely have been more fortunate in the selection of a suitable exhibition room, as the lofty domical apartment, measuring 70 feet from the floor to the ceiling, and of corresponding width, when filled with fine exotics, plants, fine fruits and beautiful flowers, redolent with delightful odors, from the gardens of many of the members, afforded a truly charming coup d'œil to the eye of the spectator.

On entering the hall, the rich groups of verdure which encircled it, composed of the most beautiful exotics, afforded the finest possible background to central tables, where the numberless bouquets of choice cut flowers and the finest specimens of early fruit were exhibited. One side of the apartment was devoted to the display of the many excellent and well grown vegetables. One hundred and forty superb bouquets of cut flowers decorated the chandeliers, the columns, and various other parts of the room; and during the second day of the exhibition the numerous company of visitors assembled were entertained with the performances of a fine band of music. The middle of the central table was occupied by a beautiful "Temple of Flora," from the Albany Nursery, the floor of which was paved with dahlias and other fine flowers, the columns entwined with a variety of phloxes, and the dome covered with a rich variety of roses and Paisley pinks. Among the most striking of the fine greenhouse plants, were some magnificent Roman myrtles, orange and lemon trees, with a great variety of other fine specimens from the Manor House, Albany, which were kindly contributed by Mrs. S. Van Rensselaer. We also noticed a very large specimen of yucca gloriosa, 10 feet high, with equally fine specimens of the India rubber tree, (ficus elastica,) fuchsia gracilis and protea argentea. The oriental cypress of the Levant, the nandina domestica of China, and the fragrant jasmines of the south of Europe, were also conspicuous for their size and beauty. An admirable variety of fine vegetables was contributed by the horticulturists of the counties bordering the Hudson, as well as from the neighborhood of Albany. Gentlemen distinguished for their zeal in horticultural and rural improvement were present from nine of the different river counties, all of whom expressed the warmest interest in the future prospects and success of the society. The early period at which the first semi-annual exhibition is held, necessarily prevents a large show of fruits, the autumnal exhibition being more especially devoted to pomology; but the cherries, strawberries and melons sent were highly deserving commendation.

At the meeting of the members, on the evening of the 25th, the annual election of officers of the association took place; when, the former president declining a reelection, the Hon. EDWARD P. LIVINGSTON, of Clermont, Dutchess co. was chosen president; A. J. DOWNING, Esq. of Newburgh, corresponding secretary; THEODORE ALLEN, Esq. of Hyde Park, recording secretary; and Wm. THORBURN, Esq. of Albany, treasurer. A vice-president was also elected for every county on the river, and executive committees for each place where it is proposed to hold exhibitions.

The next autumnal exhibition of the association will be held in New-York on the 12th day of September next, when contributions are solicited from every section of the Valley of the Hudson.

CONTRIBUTIONS TO THE EXHIBITION.

From Mrs. S. Van Rensselaer, Manor House, Albany. —Euphorbia splendens, protea argentea, 8 feet high, lagerstræmia indica, diosma encoides, ericas, several fine species, ficus macrophylla, ficus elastica, daphne variegata, several beautiful geraniums; a number of fine large orange trees loaded with fruit of different varieties; jasminum of different sorts, a large century aloe, yucca gloriosa, fuchsia gracilis, calceolarias, splendid myrtles, &c. &c.—all in pots. Also, several beautiful bouquets of cut flowers, roses, pinks, &c. also a basket of ripe melons, the finest cucumbers, two varieties of strawberries, very large gooseberries, &c. All these were of the finest description, and reflect credit upon Mr. Leonard, the gardener at the Manor House.

Jas. Wilson, Albany.—Luxumburgh moss rose, scarlet moss rose, white do., village maid do., La Furtelle do., Wellington do., two varieties new petunias, twelve varieties fine heart's ease, a splendid plant of Fuchsia Globosa, and a fine new South American calceolaria, in full bloom; one large orange tree, loaded with fruit, with many other greenhouse plants, and blooms of the following dahlias:—purple perfection, globe white, liberty, Durant's invincible, rose imperial.

E. Holbrook, Hyde Park.—Bishop's orange strawberries, 4½ inches in circumference; Keen's seedling and Hautboy's do. all of large size; white smith, crown bob,

rifleman, and other gooseberries, extra fine; four fine heads cauliflower, eight do. early York cabbage, Newcastle, early and Egyptian kidney potatoes, fine ripe tomatoes, red top turnips, large early carrots, blood beets, and a fine bouquet of cut flowers.

Josiah Williams, Poughkeepsie.—Two cucumbers, 21 inches in length.

J. Buel & Co., Albany Nursery.—A beautiful variety of fine roses, pinks, &c. tastefully interwoven in the form of a temple of Flora. Also, a great number of plants, in pots, among which the following geraniums, in full bloom, were conspicuous, viz: Mary Queen of Scots, Dennis' Perfection, Macranthos, Droivede, Juliet, Lafayette, Wheelerii Americanum, Adeline, Teatium, Ferronia, Capt. Cook, &c. &c. Also, a great variety of cut flowers, among which were splendid specimens of the different Chinese Peonies, double white, blush and rose scented. Fine specimens, in pots, of Sollya heterophylla, Lantana Sellowii, Fuchsia Thomsonii, Nerium Splendens, Crassula Coccinea, Cytisus, Argentea variegata, Erica, many species; Bouvardia triphylla, Myrtus flore pleno. Also, 12 stalks giant rhubarb, which weighed (without the leaves) 124 lbs.

Edward P. Livingston, Clermont.—Extra fine ripe melons; six very beautiful lemons. Fine specimens of the white oxheart cherry, with a beautiful bouquet, composed in part, of superb carnations, scarlet zinnias, and fine varieties of roses.

Theodore Allen, Hyde Park.—Extra fine gooseberries and cauliflowers, stalks of rye, eight feet long, and a variety of fine vegetables, consisting of lettuce, rhubarb, potatoes, turnips, beans and fine melons.

Messrs. Downing, Botanic Nurseries, Newburgh.—Specimens of the following cherries, viz: Yellow Spanish, China Heart, Black Tartarian, Downers late Red, American Heart and transparent. Also, a variety of fine hardy roses, among which were Pallagi, Village Maid, Chatelaine, George the Fourth, La Cerisette, Dianthe flora, Princess Louise, Felicite Perpetuelle, Madame Despres, Moss of Moss, Hybrid Blanc, Roi des Hybrides, &c. A beautiful specimen of Amaryllis, with eight fully expanded flowers; bouquets of Verbena Tweediana and T. Major, Datura Arborea; several sorts of Pansy, and cut specimens of the following Geraniums, viz: Dennis' Perfection, Speculum Mundi, Miller's Adonis, Sir John Broughton, Queen of Pixies, &c. Dahlias:—Conqueror of Europe and Lilac Perfection.

Dr. Wendell, Albany.—A fine Fig Tree, eight feet high; Aucuba Japonica, and several varieties of Geraniums, in pots; four fine Cucumbers.

J. R. Stuyvesant, Hyde Park.—Very fine Cauliflowers; also, excellent specimens of early Potatoes, Beans, Cabbage and Tomatoes, with a fine bouquet of cut Flowers.

Mr. Fowler, Albany.—A few select Dahlias, with several bouquets of cut Flowers, Verbena Tweediana and Ranunculus Marigold.

Mrs. Forsyth, Albany.—A beautiful bouquet of Roses.

Alderman Peters, Newtown, Long Island.—Fine White Heart Cherries.

Mr. Duane, Schenectady Co.—Prairie Grass, from the Mohawk Flats, 8 feet 2 inches high.

Francis Bloodgood, Albany.—Methven Strawberries, four inches in circumference; Green Peas and Cucumbers.

J. P. De Wint, Fishkill Landing.—Extra fine May-duke Cherries and some fine early Beans.

Thos. Turner, Albany.—A bouquet of beautiful Dahlias and Moss Roses.

Chas. Gilchrist, Albany.—A specimen of Archduke Cherries, beautiful Dahlias, and other cut Flowers, and six Cucumbers.

Alex. Walsh, Lansingburgh.—A table of Silk Worms feeding; Filberts, of last year's growth; Sea Kale, Keen's Seedling Strawberries, Duke Cherries, early Potatoes and Cucumbers, Mushrooms, Seedless Barberry, and a variety of cut Flowers, among which were Paisley Pinks, Feathered Hyacinths, Delphinium Grandiflorum, Campanula Persicifolia pl., Spirea Filipendula pl., Hoya Carnosa, Aconitum Napellus, &c. Vegetables:—Potatoes, fine Cucumbers, Early York Cabbage and Turnips, with a specimen of a new fodder plant, called 'Espansette.'

A. P. Haight, Troy.—Plants in pots, new prolific Lime, Myrtle Orange and Sweet Orange, all in fruit; also, a splendid variety of cut Flowers, Roses, &c. &c.

George W. Warren, Troy.—Three fine Lemons, in pots.

Wm. Thorburn, Albany.—Three seven years' Pumpkins, grown in 1837, perfectly sound; also, some fine Paisley Pinks, in pots; seeds for sale by him.

John B. Hudson, Albany.—Six Heads very large Early York Cabbage, and some beautiful Heads of Sicily Lettuce.

John Crawford, New Scotland.—Stalks of Rye, eight feet one inch in length.

T. McBride, Albany.—A dish of large White Smith Gooseberries.

J. Whalon, Albany.—Fine Lettuce and Cucumbers.

Theo. Roessle, Albany.—One bunch Celery, one do Onions, four Heads Lettuce, and a wreath of Double Curled Parsley.

Alderman Bancroft, Albany.—Fine specimens of Wax Flowers, executed by his daughters.

Sidney Chapin, Albany.—A fine Pine Apple, growing upon its natural stalk.

The Society cordially invite all persons resident in the Valley of the Hudson, who feel an interest in the

improvement of our Horticulture, to contribute specimens of Fruits, Vegetables, Flowers, and farm products of every description, to the Autumnal Exhibition to be held on the 12th of September next, in the city of New-York.

A. J. DOWNING, Corresponding Sec'y.
Newburgh, Orange county.

Agricultural Education.

This subject underwent an animated discussion in an agricultural meeting in Kent, (England,) in April.—The object of the meeting was to provide means for establishing an agricultural college in that county. The plan is, to raise £15,000, or about \$66,000, by shares of £10 each, which is to be applied to the purchase of eight or ten acres of land, and erecting and fitting up a school and other requisite buildings for 300 or 400 young men. A contiguous farm of 600 or 800 acres is to be taken upon a long lease, and stocked, for experiments and practical operations in husbandry. It is proposed to employ nine teachers and other requisite officers; to board and educate young men at 25 guineas a year; and it is estimated that, after paying rent on the farm, salaries and contingent expenses, there will be a surplus of 450 or £500 per annum.

In the discussions which the subject underwent, B. F. Duppa, Esq. remarked as follows:—

"In presenting myself for the purpose of explaining a plan for an agricultural college, I do so with more confidence, in consequence of that plan not only being generally approved but revised and added to by many of the chief agriculturists in this country; and it is a singular and important fact, that a want of the knowledge which it is proposed should be imparted there, is admitted in the strongest terms, chiefly by those whose acknowledged success in the practice of agriculture would point them out as living evidences, that no such institution was required. Of all the occupations in which men engage for the purpose of gaining a livelihood by the application of capital, there is not one in which a large and varied stock of accurate knowledge is not only desirable, but so absolutely necessary, for obtaining the greatest return, as in farming."

The operations which a farmer has to perform, are not few and unvarying, as are those of the manufacturer, who, having once taken up his ground with prudence, proceeds, hot and cold, wet and dry, snow and frost, in the same manner, his machinery or tackling is the same throughout the whole year—it is confined to one spot, performs the same operations, and works upon the same materials, upon which its action always produces the same effects. The produce or the crop of the manufacturer is thus certain; and he only shares with the farmer in the variations of the market. But these are not the only points in which the manufacturers have the advantage; they live together in towns, so that whatever new invention is made, whatever improvement in process is discovered, all learn and adopt it simultaneously, or nearly so. This is not the case with the farmer; he necessarily lives apart—his occupation prevents him seeing much beyond what he does himself—so that it is only through hearsay and reading that successful experiments become known to him. Other countries can be rarely visited, while other countries can be scarcely so at all. The Belgians have made great strides in the practical improvement of agriculture, but how many persons are there in this room who have been to see what they have done? Belgium is but a few hours' voyage from Dover, and a rail-road transports the traveller from one part of the kingdom to another. Such are some of the difficulties of the farmer's position; what arrangements have been made to enable him to overcome them? Agricultural societies have been formed, at which there are exhibitions of produce, prizes are distributed, and ploughing matches take place. But much good as they have done, and are calculated to do, they go not to the root of the evil. No reward—no prize can bring more out of a man than he has in him. We want something which will sink deeper than this, something which will place into the minds and habits of people that which we desire to come out. The only thing I know of capable of effecting this, is an education well adapted to the circumstances and future prospects of the individual. And this, from all I can learn, and the farmers themselves have been my informants, it is impossible now to obtain. But are the manufacturers, who I have shown from their position to stand less in need of science than the agriculturists—are they idle on this head? have they been doing nothing? In most of the large manufacturing towns throughout the kingdom, great efforts are making to give knowledge a bearing upon the principles of the occupation of the place, not only to the manufacturer, but to the mechanic. At Manchester, at Liverpool, at Glasgow, at Edinburgh, in the potteries, in the mines of Cornwall, there are classes for mathematics, chemistry, mechanical drawing and mechanics. They teach the strength and strain of materials, pressure on embankments, floating, engineering, and all matters which the wants and occupations of the locality make desirable; and of the school of arts in Edinburgh, a certificate is given to all pupils who have passed through the mathematical, mechanical and chemical classes, and at an examination shown that they have duly profited. Thus these portions of the population are pushing forward, and while they are doing so, are we men of Kent to remain behind? God forbid! I rejoice from my heart at the exertions making elsewhere. It is only another reason to exert ourselves, if our own improvement, and the increased produce of the soil, are not of themselves of sufficient reward to hold forth. With a view then of enabling the yeomen and others connected with agriculture in this country, to give a superior and suitable education to their children, it is proposed to found a college of agriculture, by the united strength of the county, which shall be so constituted as to afford all the facilities for the religious, moral and intellectual training of a well conducted school, combined with the practical knowledge, practical skill, and the habit of close industry and attention, which can only be obtained upon a farm and in suitable work-shops."

"When the pupils have perfected themselves in the elementary branches of an English education, they will proceed directly," continues Mr. D. "to those departments which bear immediately upon their future professions; and these must be principally chemistry, mechanics, the philosophy of animals and plants,—all as applied to agriculture. In chemistry lies the secret of the manner in which manures act upon different soils, and soils upon each other. In mechanics lies the secret of economizing power of every description. In the physiology of animals and physiology of plants, lie the secrets of choosing and treating animals.—While in the physiology of plants lie the secrets of generating and rearing plants in the greatest perfection, and placing them in soils suitable to their respective natures. Besides intellectual instruction, it is proposed to endeavor to effect two other things, to give our young pupils skill and the habits of industry. It is proposed that they shall be practised in such of the arts as are subservient to agriculture; as carpentry, smith's work, building, surveying, draining and irrigating; that from an early period of life the boys shall be trained to the practical application of what they learn; and that while a portion of the day is devoted to the school room, another will be given to the work-shop, the garden and the field. It is scarcely possible to calculate the effect which such skill possessed by the farmer would have upon the whole race of artisans throughout the country districts. No farmer who could himself use the tools of the carpenter—no farmer who could himself shoe a horse in a proper manner,—would tolerate what was clumsy and unworkmanlike in the carpenter and the smith. The farmers would know what was right, and would have it done. * * * As for difficulties, there are difficulties in the way of everything that is worth attaining. Let us not shrink from them, but meet them fairly, and depend upon it they will yield to us."

"The Rev. W. L. Rham observed, that he had been requested to state to the meeting, what he had observed in similar institutions on the continent, and their effects upon the improvement of agriculture wherever they had been established. In England we had had for a long time little or no communication with the continent, and our farmers were entirely unacquainted with the improvements which had been made in other countries. But this was not the case on the continent. By means of institutions, chiefly supported by the government, where agriculture was taught in theory as well as practice, every work which appeared in England, of any value was examined, and if it contained any practical improvement in the mode of tilling the land, was immediately translated and distributed in a cheap form. In Austria, a book containing the elementary principles of agriculture, is, by command of the emperor, taught in every parochial school—as a subject useful and interesting to every class of men, whether practically engaged in the cultivation of the soil or not. In Prussia the establishment of an agricultural college at Moegelin, on the Oder, had been the means of training a great number of men in the best practices of agriculture; and while they learned to hold the plough, and to observe minutely its action, they had sufficient opportunity to discover defects, and suggest improvements where they were practicable. M. Von Thaer, who was long at the head of this institution, wrote a most valuable work on husbandry, which has been read and translated into almost every language; but for want of institutions in this country which directed men to every source of agricultural knowledge, it has never been translated into English, and till lately, was scarcely known. It is called 'Principles of Rational Husbandry.' The pupils of the school of Moegelin have been dispersed through the country, and have greatly improved the agriculture of Prussia. In Switzerland a school for training young men in a knowledge of practical and improved husbandry, has been established at Hofvyl, near Bern, by a well known and justly celebrated individual, M. de Fellenburgh. Here general education is combined with agricultural instruction; and this institution is remarkable by having been established and maintained by an individual, without any assistance, excepting some trifling advances by the government of Berne, which have probably been repaid in a very short time. The labor of the pupils amply repays the expense of their maintenance and instruction. * * *

There is a celebrated school of agriculture at Roville, not far from Nancy, in France, where M. de Dombastres trains young men in the theory and practice of agriculture; and these, afterwards dispersed through the country, introduce improved practices, and will soon raise the agriculture of France to a level with that of the most improved countries; for it must be acknowledged, that, in consequence of the wars and revolutions which have for so many years distracted that fine country, agriculture has been woefully neglected, and was not to be compared with that of the surrounding countries."

"Sir W. B. Riddell eloquently supported the project, and stated that Lord Mensham, himself, Mr. Brett and Mr. Tufnell, having joined Mr. Duppa, with a view to assist his arduous exertions, communications had been held with some of the first persons in the county, who had unanimously approved of such an institution, together with all persons interested in agriculture who had been consulted. The hon. baronet then read and referred to letters from the archbishop of Canterbury, the bishop of Rochester, Lord Bexley, Viscount Sidney, and Lord Sondes, who all concurred in their approval of such an institution. Earl Spencer, who is president of the British Agricultural Association, Lord Weston, Earl Brecknock, Lord Radnor, Duke of Richmond, Lord Chichester, Earl Winchelsea, and the Marquis of Lansdown, had also expressed their conviction of the utility of some such institution as was then proposed, as also had Mr. Lake, Mr. Bapchild, and several other eminent agriculturists.—Looking as he did to the immense number of persons who were interested in supporting it, in order to procure a suitable education for their children, not only in this but other counties, and even other countries; considering the number of persons, of all conditions of life, who are now sending their sons out to the colonies, he could not entertain a doubt of the success of the Kent Agricultural college."

"Mr. Brett called the attention of the meeting to the fact on which they were all agreed, viz: that there could be no doubt of the lamentable deficiency that existed of facilities for procuring scientific agricultural information. A perfect remedy for that deficiency was offered by this institution. A very large number of gentlemen had consented to take shares in the undertaking; indeed, raising the money was the smallest difficulty they had to contend with. It had been determined that this institution should not be dependent on persons of high station, property and influence; but

should be supported by the yeomanry, and all persons connected with agriculture; and the proposed committee, whose duty it would be to prepare estimates, and lay them before a general meeting, contained a preponderant number of yeomen, being formed of twenty-five yeomen, fifteen other persons, five magistrates and five clergymen. At present the subscription list had been confined to Kent; but if it were desirable, many other gentlemen were anxious to support the proposed institution.

We ask of the reader an attentive perusal of the preceding extracts, and particularly those who wish to have sons educated in the principles and practice of an enlightened and improved agriculture. The subject is one of common interest to every class of the community; and although the sentiments here expressed come from "the men of Kent," they nevertheless have a general application, and are especially suited to our condition. And we beg our leading men to note the interest which is evinced in Britain by earls, dukes, bishops, lords, and baronets, in promoting the greatest interest of their country—its agriculture; and to ask themselves, if those men do not, by these noble acts, deserve more respect and more honor, than for the titles which they bear. We too have eminent men, who might be equally useful—we have our earls, dukes and lords, if not in name, at least in wealth, talent and influence, who might, if they would, give an impulse to agricultural education, which would speedily change and improve the intellectual, agricultural and social condition of our country, and render them a blessing to future ages. And since it has become fashionable abroad for great men, and the governments, to interest themselves in these matters, we hope to see the fashion followed here. It is almost the only fashion which we can adopt from Europe, that is suited to our republican institutions; and there is none which so eminently combines the *dulce* with the *utile*—the sweet with the useful.

The efforts to improve the condition of the agriculture of Europe, by imparting scientific as well as the best practical instruction to the young agriculturist, have generally emanated from, and have in all cases been ably seconded by the higher orders of society—by men of science, property and influence, and generally aided by the governments. These men all look to the soil, as we ought to view it here, as the great source of national and individual wealth; and that every advance which is made in its improvement adds to the means of their happiness. Land and labor are the great sources of public and private wealth. The more fertility we impart to the one, and the more intelligence we infuse into the other, the greater will be the return they make, and the greater our means of wealth and power. For it is wealth, rightly employed, that procures for us the substantial enjoyments of life, and that renders us independent, either as individuals or as a nation. Yet it is not a very rich man, nor a very wise man, be the aggregate of wealth and talent ever so great, that give prosperity and greatness to a nation. It is the general diffusion, among a whole people, among the rank and file of society, of property and knowledge, and the industry, enterprise, and independence which they beget, that renders a state truly respectable and great. The character and power of a state depend much upon the knowledge and virtue of the sovereign. The people are here sovereigns; and if we would foster and preserve our civil institutions, we must fit these sovereigns for the high duties which are allotted to them. Let us then endeavor to impart to their labors the light and life of science, and the stimuli of distinction and reward. How much more the appellation of great and good—how much more honorable and enduring the fame,—of those who concentrate their efforts and influence in promoting the welfare of a community—of a whole community—in endeavoring to multiply, permanently, the comforts, the virtues (for industry is not only a virtue, but the parent of many virtues)—and the happiness of the human family—than of those who concentrate their efforts in party strife—who strive to keep down their fellows, and to riot upon the fruits of other's industry.

Change of Food.

There seems to be a natural disposition in man, in the brute, and in the vegetable, to a change or alternation of food, alike conducive to the gratification of the appetite and the promotion of health.

This propensity in man is apparent to all. That a change is conducive to health, is evidenced by the fact, that persons long confined to the same diet are much more liable to disease, than those who indulge in a variety. This is seen in long voyages, and in the army, where men subsist daily upon the same rations. If there is any exception to the rule, it is where the food is of the simplest kind, as the brose of the Scotch, the potatoes of the Irish, or the rice of the people of the tropics.

The general principle being admitted, or that even a change is not prejudicial to health, how important is it to our comfort, and economical in regard to expense, to multiply around us the fruits, vegetables, &c. which are the subjects of garden and field culture; and to select for this purpose the best varieties; and these are undergoing constant increase and improvement, by means of culture and fecundation. Every season brings to our notice new species and new varieties, particularly in garden productions, favorable alike to health and to innocent gratification. The tomato and the rhubarb, both of recent introduction to our gardens, are of this character.

"By means of new varieties," says Bishop, "the produce of our gardens and fields are not only increased in a ten fold

degree, but the quality of the produce is increased in a still greater proportion, and the difference between varieties that have sprung from the same species, fit them for different purposes, different soils, situations and climates. Thus in edible plants and fruits, we are supplied with an agreeable change throughout the year, from a difference in varieties that have sprung from the same species. Nothing is more obvious, upon comparing original species with their varieties produced by culture, than that we, by means of the latter, enjoy a vegetable food far preferable to that of our forefathers; and as it is probably beyond the power of man, of cultivation, or of time, to determine the degree of excellence attainable by varieties over the species whence they have sprung, and as that degree is unknown, we are justified in regarding it as progressive, and to consider the production of a good variety as the sign or harbinger of a better."

The disposition of animals to change their food, is evidenced by their habits, and their disposition to pluck a variety of herbage, and to select that which is new to them. That a change is conducive, and indeed indispensable to health, has been proved by repeated experiments. Dogs and other animals, who have been confined to one kind of food, although of a kind naturally suited to their wants, have sickened and died. Sinclair cites a case of the effects of two adjoining pastures,—one containing only white clover, and a patch of orchard grass—and the other stocked with five or six kinds of grass, and among them the orchard grass. In the first, the sheep resorted for a change, to the orchard grass, which they ate to the stump, culms and all; and some time after this was exhausted, many of the sheep became affected with the red water, and some of them died. In the adjoining pasture, in which there were six or eight species of grass, the sheep were wholly exempt from disease. But Sinclair demonstrated by accurate experiment, that a multiplicity of grasses sown together, not only contribute to the health and thrift of the animals depastured upon it, but that the product was greater, considerably, and exceeded that of the best old pasture grounds. From these facts Sinclair and others argue, that we ought, in stocking down our grounds, to avail ourselves of all the grasses that we can procure, and that our soil will nourish. Groom observes, that out of more than 200 grasses suitable to England, only one genus, the rye-grass, has as yet received general culture; and that of 60 species of clover, only three or four have received attention. The presumption is, that many indigenous grasses, which have hitherto escaped the notice of our farmers, would be improved by culture to as great an extent as the wild carrot, parsnip, cabbage, potato, apple, plum, peach, &c.

That the vegetable is improved by a change of food, is not only evidenced by the natural law of alternation, witnessed in forests and in cultivated grounds, but by the improvement which takes place from a change of seed. It has become a well established principle, that a change of seeds, from one soil, and from one district to another, is highly advantageous. We have had this particularly verified in the potato, where foreign seed, of like variety and size as that raised on our farm, produced in the same field, one-third the largest crop. Growing from the same seed, without change, seems to be a sort of vegetable breeding in-and-in. The progeny seems to deteriorate in both cases, and ultimately to become worthless. Upon these principles we should not only recommend an alternation of crops, but a frequent change of seed, to ensure a healthy vegetable constitution and vigorous growth.

Geological Report.

We come now, in our examination of the third geological report, to the communication of Professor Emmons, of the second geological district, embracing the northern portion of the state.

"Considering agriculture," the Professor correctly remarks, "of the first importance to a state or community, we are gratified with every discovery which favors its prosecution and increases its products and profits."

"Next in importance are those which increase the quantity of the raw materials for the use of the arts, the manufacturing of which employs directly or indirectly a large portion of the human family. Upon the abundant and cheap supply of those materials, much depends for the prosecution of the great system of internal improvements, the profits and success of which are, in a great degree, dependent on the geological surveys now in progress."

"Last, though not the least in importance, are those discoveries of a scientific nature, which form the data on which natural phenomena are explained, and which constitute the basis on which may be founded the early history of the earth."

Porcelain clay, and feldspar, which are essential materials in all the finer kinds of pottery, or what is usually termed China ware, or porcelain, are found in this district; the porcelain clay in Athol and Johnsbury, in Warren, and in Minerva, in Essex. The Professor expresses a high opinion of the quality of this clay, and his opinion seems to have been confirmed by Mr. Henderson, of Jersey city, an able artist, and a manufacturer of Liverpool ware.

Marble of different kinds and qualities is found in the second district. We extract the notice of the remarkable quarry at Glen's-Falls.

"One of the most valuable quarries which has been opened is at Glen's-Falls. Nature at this place has exposed the strata in such a way that the whole thickness of the limestone can be examined without the labor of artificial or expensive mining. The river has cut into the rock to the depth of at least 70 feet."

"The marble is extensively manufactured by two enterprising companies; it is therefore favorably known to the public, and has acquired a high reputation. For this reason

it would be superfluous for me to give a particular account of its qualities. I take the liberty, however, to subjoin a letter which I have recently received from the agent of the Glen's-Falls company, in relation to the position of the marble in the quarry, and also of the quantity which has been manufactured, &c.

"The Hudson river at Glen's-Falls has worn a passage through the limestone to a vast depth, rising in some places seventy feet from its surface. The strata measure from one inch to ten feet. A short distance from the river, on the Saratoga side, lying on limestone, is found black slate. Succeeding this are found strata of marble; slabs have been sawed and used for fire-places. It is sound, and of good colour. Succeeding this on both sides of the river, are found fifty strata of limestone, composed in part of organic remains. Next in succession are found strata of gray marble, two and a half feet thick; it receives a fine polish, but the colour is not admired. A stratum of darker colour follows this which is six inches thick, though valuable only for steps. Then follows the black marble, which for brilliancy of polish and beauty of colour, perhaps, has no rival. The whole stratum is ten and a half feet thick. Veins of organic remains run at irregular distances from each other through the strata; these veins are from two to four inches thick, running ten and sometimes twenty feet, break off abruptly. Where these veins do occur, though they are not numerous, they rather mar the beauty of the marble. Who first discovered this marble is not known, and it is of little consequence to inquire. Numerous attempts were made to work it, but without profit, until the present company received it."

"The following exhibits the amount of stone which the Glen's-Falls company have prepared and sent to market during the last four years. The company run sixteen gang of saws, which are equal to about one hundred and sixty single saws."

In 1835,.....	2,157 feet, or	32,000 lbs.
1836,.....	19,800 "	278,500 "
1837,.....	23,400 "	333,900 "
1838,.....	25,000 "	352,500 "

"It is remarked farther by Mr. Roberts, the agent of this company, that the Glen's-Falls marble has gained a good reputation with most of the workers of marble in New-York, Boston and Philadelphia, as it regards its colour, the polish which it receives, and the ease with which it works; and that it is considered equal to any of the kind in this country."

"He states that they have got out shelves for mantles seven feet and six inches long, thirteen inches wide and one and a quarter thick, which sells for sixty-five cents per foot. The price for this kind of stuff has fallen, and at the present is worth from fifty to fifty-five cents per foot; that which is shorter, from thirty to forty."

"There are some considerations in relation to the marble business, which are necessary to be understood by those who are disposed to engage in it."

"1. The expenses of opening the quarry.
"2. The soundness of the layers which it is proposed to work."

"3. Their freedom from hard or flinty particles or masses, as quartz, hornstone, &c."

"4. A sufficient thickness in the several layers composing the bed, for unless there are a number of layers of sufficient thickness to work in juxtaposition, it will be necessary to remove a great mass of useless material. Small defects, such as checks, seams or cracks, or imbedded masses of flint, reduce the value of any piece materially. It is necessary therefore that there should be a general freedom from all the above defects, in order to make it a profitable business."

The species of marble termed *verd antique* is found in Moriah, Warrensburgh, Athol and Johnsbury, of an excellent quality; and the Professor thinks it may yet form an article of export to Europe, where it is scarce and in great demand.

Peat is found in great quantities. A remarkable growth of it is found on the farm of Mr. Richards, in Warrensburgh, Warren county. It occupies a space of 60 acres, is 60 feet deep, of good quality and of easy access. This material, the Professor remarks, may be applied to four purposes, viz:

"1st. As a manure. To secure or obtain an important result, something more is necessary than simply to spread it upon the soil. It should be raised in the fall, spread in the barn yard, or placed in heaps and mixed with animal matter and lime. Placed under these circumstances it is exposed to the frost and the atmospheric agents, which produce in it incipient chemical changes necessary to convert it into the nutriment of plants. This is especially the case when lime is added to it, which forms a soluble salt, the *gate of lime*, with a portion of the vegetable matter. In the spring it is prepared for removal to the field, and may be spread upon the meadow for grass, or it may be used as a manure for corn, potatoes, &c. It will not answer a good purpose when employed without due preparation, especially when it is spread on meadows for grass: it then becomes dry, is insoluble, and of course unfitted for the nourishment of vegetables. The same remarks might be applied to the preparation of peat as are recommended under the head of preparation of the marly clays."

"2d. Peat, as is well known, answers a good purpose for fuel, and undoubtedly ranks next to coal for sustaining for a long time a high temperature. There is no substance which would remove so much suffering among the poor as the general introduction of this substance for fuel in our larger towns and cities. Its abundance and cheapness recommend it to the attention of the public, and if measures could be devised to bring it into use, in this state, many important results would follow."

"3d. Peat furnishes an abundance of carburetted hydrogen, and hence may be employed for producing gas light. Dr. Lewis Feuchtwanger, of New-York, has made known to the American public the experiments of Merle, a director of a gas light company in France. The advantages of peat for the production of gas are as follows: 1st. It is less expensive than gas from coal, oil or resin. 2d. The produce is nearly as much as from those substances. 3d. The gas is quite harmless and inoffensive, and has, in respect to healthfulness, great advantages over some of the other kinds of gas."

"4th. After it has been employed for gas it may be used for fuel, and it is equal to any charcoal."

As an article of fuel, the Professor thinks peat may be rendered of more value than coal; and he states that it has been advantageously employed in steam-boats, in propelling the engines.

Black lead is found in several localities in Warren and Essex. Several tons have been extracted and marketed.

Application of marls and clays to agricultural purposes.—The Professor's remarks upon this subject are so sound and beneficial, that we copy them entire.

Preparation of the marly and tertiary clays.—In agriculture, as in all kinds of business, many things fall into discredit in consequence of misunderstanding the principle on which their use depends. For instance, the use of plaster on most soils is decidedly beneficial, but there is such a thing as an excessive use of it, and of persevering in its use too long, when its specific effects are imperceptible, and it becomes of no value whatever.

"The due preparation of soil is always an essential matter for the production of a good crop, or to produce a favorable result either in an experimental trial of any new variety of grain, or new mode of culture of those ordinarily raised. It is a matter of common observation, that one farmer succeeds well in his crops, while another does not, though his natural circumstances are equally favorable. Remarks of a similar nature may be made in relation to manures. One succeeds admirably in the use of marl, while another after a little trial, wholly discards it as useless, if not hurtful. This difference of opinion and practice, which is often the result of experiment, is owing to several obvious causes, such as the different modes adopted for securing the end proposed, and which arises from an imperfect or vague notion of the principles by which the desired result is to be produced.

"In the use of the clays, as the common, marly and tertiary, I have found a variety of opinions, each of which, it is pretended, are based on experience. One considers them hurtful, another as useless, while a third finds them, on trial, very useful. It is important to understand how such a diversity of opinions exists, when they are founded on experience.

"I conceive that there are two reasons for this. In the first place, the original character of the soil is such that the use of the clays, under no circumstances, would be proper, or followed with beneficial results. Clay already forms an abundant element in the soil, both for the aliment of the plant, and for the firmness of the soil. In the second place, it is not used in the right state or with due preparation. This leads me to the direct question, What is the right mode of using the clays, or what preparation do they require?

"1st. The great point to be attended to, is to secure a sufficient degree of fineness, that they may be incorporated with the soil, and form, strictly speaking, a constituent part of it. To attain this object, it is necessary that they should be raised in the autumn and placed in heaps, that they be exposed to frost and the atmosphere through the winter. To assist still further in the process of pulverization, it is better to mix them with barn-yard materials, straw, manure, and refuse of any kind, either animal or vegetable. This course being pursued with them, they should be spread as evenly as possible on green sward, that they may enjoy the further benefits of the air, moisture, &c. by direct exposure during the season. Besides, the grass in passing up through the layer will assist greatly in producing a comminuted state. The succeeding season it is in a state to be ploughed in, when it is duly prepared to become a constituent part of the soil; it is only in this way that the stiff and adhesive clays can be broken up and prepared for an incorporation with the other earths.

"Suppose a different course was pursued. Instead of raising the clay in the fall, it was raised and spread immediately in the spring, and ploughed into the soil: the result would be, that it would remain in masses in the earth, and unmixed, in which state it will continue for years with but little change, and instead of being a benefit, it would rather form an annoyance, and incommode both the farmer and his crops. From these remarks, it is clear how two farmers might disagree in their experience with the clays. One, by a suitable preparation of the material, finds a great advantage in their employment; another, by throwing them on or into his soil in lumps, perceives no effect on his crops, or is incommode by the hard baked masses of clay which a hoe can scarcely divide asunder. It is true, that in time, those masses would disappear, and finally they would become incorporated with the soil, but several seasons would elapse before this would take place, and the result of the trial would be such as to discourage the further employment of the article; besides, I believe that clay or any other material is more readily broken down and pulverized when first taken from the bed than afterwards, when it has been exposed to the hardening influence of the sun during the warm season.

"The necessity of an intimate mixture of any substances intended to act as a manure, cannot be too much inculcated by the agriculturist.

"Most of the clays of this state are those which are marly, or which are combinations of clay and carbonate of lime. They are widely diffused, but their value is not highly appreciated. The time is not distant, however, when they will be esteemed as highly as plaster. They have even one advantage over plaster, that their effects are more lasting when they have had a due preparation.

"The practice of employing vegetable or animal substances in conjunction with marl, or the varieties of calcareous manure, has not prevailed to a suitable extent. It must be plain that carbonate of lime, or sulphate of lime, cannot support vegetation without other materials. It appears, however, that a large proportion of the food of plants exists in the earth in an insoluble state; and that it is by a chemical union of the calcareous matter and this insoluble vegetable substance that it becomes soluble, and fitted for the sustenance of plants in general, hence arises the mutual benefit of combining earths with vegetable and animal substances; and hence, too, the bad practice of continuing the mineral manures until the whole of the vegetable and animal matter is withdrawn from the soil, for by the increased activity of the growing vegetable, the soil is rapidly exhausted of its nutritious matter, and it is left comparatively barren, if the

agriculturist ceases to apply vegetable and animal matter. There remains then but one course, that of supplying directly the necessary nutriment; but it is unquestionably better to maintain a sufficiency of vegetable matter always in the earth, and never suffer a soil to be exhausted or worn out by overtaxing its resources."

HAMILTON COUNTY,

Which, until recently, has formed the north part of Montgomery, although broken and mountainous, and as yet but a wilderness, is represented as affording a strong and productive soil, and an excellent country for grazing, raising stock, and for producing butter and cheese. The district comprised in the county of Hamilton is very similar to the Green Mountain range in Connecticut, Massachusetts and Vermont; alike adapted to the raising of fine cattle, and hale, stout, intelligent, independent men, whenever that bane to agricultural and mental improvement—the *lumber business*—shall cease to be the principal occupation of its inhabitants. The county abounds in lakes and picturesque scenery. Cattle and dairy husbandry have now obtained a firm footing on the northern borders of the Mohawk valley. Farms there are in consequence doubling in value, and the farmers are becoming wealthy; and the proximity of Hamilton county to this district will not permit us to doubt but the example will spread northwardly; and that this new county will ere long attract the notice and the enterprise of the emigrant. The facilities of transporting to market the products of the soil, of the dairy, and domestic animals, hold out advantages to the cultivator which are not to be found in more remote districts. It is an unquestionable fact, that all kinds of animals, including the human species, possess more health, and display finer powers, on the hills and mountains, and in the intervening valleys, than they do on the plains and in the champaign country. Nor is this all—here abide, in their greatest purity, the social and household virtues; and, above all, here liberty loves best to dwell; and it is from the hilly and mountainous districts that she wings her last flight from any and from every land. Driven long since from the plains of Italy, the goddess loves yet to linger in the recesses of the Alps and Apennines, and to hold communion with the descendants of William Tell, and of other patriots of ancient days.

Internal navigation.—By means of the numerous lakes which dot the county, which are nearly upon a level with each other, and most of which are already connected by streams, in part boatable, a channel of internal communication may be opened, at comparatively trifling expense, between the head waters of the Hudson, and the streams which flow into Lake Champlain and the St. Lawrence river. And when we consider that the region abounds in ores, limestone, marble, and the finest timber in the state, it does not require a great stretch of credulity to believe, that the present generation will not pass away ere the county of Hamilton will be in a great part settled, cultivated, and made to develop its resources of wealth and happiness. Lying off from the great thoroughfare of travel, it very seldom attracts the notice of the traveller and the emigrant; and Prof. Emmons has rendered a public service by bringing it out from the shade, in developing its resources, and pointing out the facilities of a water communication, the expense of which will not be much greater, in the end, than a turnpike, to expedite to market the iron, the lumber, the marble, &c. of this extensive district.

CLINTON COUNTY.

This is another county of our state possessing much good soil, and a climate as mild as its parallel in New-England, which lying off from the great thoroughfares, has not met with the notice from emigrants to which its position and fertility entitle it. It is not only a grazing, but a grain district. The extensive iron and other manufacturing within its limits, and upon its borders, will for a long time afford a ready and profitable market for its surplus agricultural products; and when these fail, the lake upon its border affords the ready means of transporting it to Montreal or to Albany, as prices may invite. The agricultural capabilities of this county have in a great measure remained dormant, by reason of the lumber trade, an impediment to improvement which is fast disappearing. Under a better,—under the new system of husbandry, the lake towns may be rendered highly productive in grain, roots and grass,—and those lying in the interior, in cattle and their products. But let us hear the Professor. He says,

"Whoever has travelled during the summer from Port-Kent to the Canada line, along the main road, cannot have failed to remark the excellence of the soil and the favorable make of the country for agricultural purposes. Probably there is no better soil in the state than that of Peru, Chazy and Champlain. It is composed of a due intermixture of the tertiary clays and sands, which nature has sometimes intermingled in the proper proportion to constitute the best for agriculture; in other cases, they are placed in juxtaposition, prepared to the hand of the husbandman to make that mixture which, in his judgment, shall best promote his interests. Of the richness of the soil, and the favorable nature of the climate, we have an unerring test, also, in the thrifty growth and healthy state of the apple, and other fruit trees. In a cold soil and a windy district, they are uniformly stunted and covered with parasites, which gives them really a gloomy aspect; but in a good soil and temperate climate, they always look flourishing and green, and free from that sombre appearance they wear when their limbs and twigs are covered by a parasitic growth of lichens."

Sand stone, for glass, iron ores and black marble, are found in this county. The ores are principally in the southwest section of the county. The iron made from them is of a superior quality.

WARREN COUNTY,

Is strictly a mountainous district; but is sufficiently productive, the report assures us, to answer all the ends of the husbandman. Its mineral productions have already been partially alluded to; and we do not find in the report of this county any suggestions particularly beneficial to agriculture.

Mr. Colman's Second Report.

MANURES.

Under this head the commissioner has given us a short chapter—too short—and has omitted what was most wanted, his own matured opinions. It is a subject of the first importance to agricultural profit. The results which he has cited, of various applications, as gypsum, ashes, marl, &c. serve rather to bewilder than to guide the novice.

The preliminary inquiries in regard to gypsum are, to what soils, and to what crops it is beneficially applied, and upon some crops; and it is certainly of little or no benefit upon other soils and other crops. For ourselves we are disposed to hold to the theory of Sir Humphrey Davy, till we have a better one to follow; first, because it seems to us the most rational; and secondly, because we think we have found it verified in practice. Davy's opinion was, that gypsum is a necessary element in certain plants; (as a few drops of pepper-mint were wont to be in olden times in a mint sling;) that without it, the plant cannot, any more than the sling without the mint, attain its distinctive character, or rather develop its natural volume; that many soils naturally contained enough gypsum to supply the demands of the crop; that other soils were replenished with it in the yard manures which were carried on to them—(the manure containing gypsum)—and that where it did not so exist in the soil, its application would be of certain efficacy to all crops which are found to contain it on analysis. Davy found gypsum in the ashes of clover and lucern, in the ratio of four bushels of this mineral in the crop of an acre. It is a rational philosophical conclusion, that this gypsum must have been derived from the soil; it could not have been imbibed from rains nor from the atmosphere, under any known natural laws;—and the conclusion from these premises is, that unless it had previously existed in the soil, or been artificially supplied, the clover and lucern would have been either diminutive in growth, or deficient in their natural qualities. We do not know what farm crops give gypsum on analysis; but from an experience of twenty years, we have come to the conclusion, that it is beneficial on all dry soils, sands, gravels and clays, generally, with the exceptions indicated below, to broad-leaved crops, as clover, lucern, corn, potatoes, peas, beans, buck wheat, &c. and that is of little or no direct service to narrow-leaved plants, as wheat, rye, barley, timothy, &c. It is not beneficial in wet grounds, nor within the influence of the marine atmosphere. Its beneficial effects have been greater upon poor soils, especially sandy ones, than upon rich soils, provided the poor soils contained enough organic matters, in a soluble state, to feed the crop. Under this view of the matter, and from the fact that gypsum is not soluble in less than 500 parts of water,—we have adopted the practice, recommended, we think, by Taylor and Peters, of sowing it broadcast upon fields designed for our corn and potatoe crops, before the last ploughing or harrowing, that it might be rendered soluble in due time, by the moisture of the soil; and have scattered it in March or April upon our grass grounds, that it might be carried into the soil by the vernal rains, and be more readily taken up by the roots of the grasses. It is an undisputed fact, that when gypsum is applied late to the surface, and dry weather ensues, it is often inoperative, at least for the season.

One case is cited by the commissioner, of a potatoe crop, plastered by putting a table spoonful on the seed in the hill, giving twice the yield of an adjoining piece which had received no plaster, but in other respects similar treatment with the plastered piece.—This strengthens our theory, and is in conformity with our practice, only that we wet our seed potatoes in the cart, and strew the gypsum upon them there.

The prejudicial effects of ashes are mentioned, when applied to wet soils, as are their beneficial effect upon dry soils. Without being leached, Chapin remarks, wood ashes are too active; but after having been deprived by the action of water of nearly all their salts, they will produce great effect, particularly upon moist lands and meadows, in which they not only facilitate the growth of useful plants, but if employed for several years they will free the land from weeds and rushes. Wood ashes, he continues, possess the double property of amending a wet and clayey soil, by dividing and drying it, and of promoting vegetation by the salts they contain. Here too we want more light to guide our practice. Ashes do not properly constitute any portion of the positive food of plants. Their efficacy consists in the mechanical amelioration which they afford to the soil, and their chemical effects upon the organic matters, or the materials of vegetable food, which are there deposited. We give to animals condiments and stimulants, to aid the processes of digestion, or at all events some of the human family are in the habit of taking them to excess. These, when duly administered, as the daily use of salt to our farm stock, tend to aid and assist the digestive processes,—and to convert the food into healthy chyle, blood and flesh. The soil is the stomach of vegetables; and alteratives and stimuli applied there, are often as beneficial in promoting vegetable nutrition

and health, as they are in animal economy. Lime, marl, ashes, gypsum, &c. constitute these alteratives and stimuli. But we lack, though we hope the lacking will not long continue, we lack the same scientific investigations, in regard to the digestive processes of the brute and the vegetable stomachs, that we possess in regard to the digestive processes of the human stomach; before we are able fully to understand the laws which must ever govern in these matters, we must know the constituents of our soils, if we would know what they lack, or what they contain in excess, prejudicial to fertility. We have all the elements of fertility, and the capacity of searching out and applying, and of profiting by them. Industry is enjoined by the holy pen, as one of the principal terms of our temporal happiness.—When applied to the body, it gives us health, and the means of gratifying our animal appetites. When applied to the mind, it lightens the labors of the body, leads to high intellectual enjoyments, and benefits society.

In regard to ashes, the commissioner has failed to note whether they were leached or unleached, or to state in what manner they were applied. Unleached ashes contain potash, an active and powerful fertilizing material upon most soils, if properly applied; and when thus applied they seldom fail to benefit a dry soil. Drawn or leached ashes contain far less of alkali, yet upon some soils they are highly beneficial, particularly upon the seaboard, where their fertilizing properties have been ascribed to the influence upon them of the marine atmosphere, or muriate of soda.

Marl, too, has proved inefficacious in Berkshire; rather, we apprehend, from the imperfect mode of applying it, or from applying it in excess—a shovel full to a hill of potatoes. We have the analysis of the marl thus used. This demonstrates to us the importance of correct punctuation; for according to the text, it contains but 1.2 in 100 of carbonate of lime. It reads and is pointed thus: It contained “of soluble gneiss 2.6 of insoluble, 3.4 of phosphate of lime, 1.2 of carbonate of lime, 86.2 of granitic sand, 5.0 of water of absorption 1.6.” This reminds us of a notice once sent to the pulpit. It was read thus: “A man having gone to sea his wife, desires the prayers of the congregation.” The mistake was in placing the comma after wife, instead of putting it after sea. The comma, in the commissioner's report, has given to his marl 86.2 of granitic sand, and but 1.2 of carbonate of lime.

But with regard to the application of marl, great errors have prevailed—exposure to atmospheric influence, in a pulverized form, and afterwards a thorough intermixture with the soil, seem to be indispensable requisites to its beneficial operation. See notice of Prof. Emmons' report, in another column.

Having thus made, we fear, too long a chapter, out of Mr. Colman's too short one, we proceed to notice his remarks upon

FARM BUILDINGS.

In which we deem our brother Yankees generally deficient, both as regards economy, comfort, and taste. The commissioner noticed but one stone house in Berkshire, where the best materials, in stone, lime and sand, abound for their construction; though he intimates that they may be constructed cheaper than wood. A substantial stone fabric, with a basement kitchen and window shutters, is twice as economical, in the end, where the materials abound, as a wooden one, and ten times more comfortable. And we would have the roof project, as recommended by our correspondent Mr. Ashburner, four to six feet beyond the walls. We have seen such houses in Ulster, which have stood more than a century, nearly as good as new. Stone houses are the warmest in winter, coolest in summer, least liable to take fire; and if well ventilated in summer mornings, and the shutters closed during the day, the apartments are always healthy and agreeable, and free from flies and mosquitoes, two formidable enemies to the siesta, or after-dinner repose.

The commissioner, like our thriving Dutch farmers, seems to have regarded barns with more interest than he does dwelling-houses; and really, after all, barns are the best criterion of the character of a farming community. Where these are capacious, well filled, and in good order, the dwelling, though small, is seldom out of order, or the family in want of the necessities and comforts of life. The commissioner recommends that barns be constructed on the sides of hills, that teams may be driven in above, and the manure sheltered from the weather below. We should prefer the Pennsylvania mode of using the basement story for farm stock; and of depositing the manure in a concave yard, which would hold the liquids, and become a depository for the refuse litter. Dung, and especially horse dung, is apt to become fire-fanged, and seriously injured by being deposited in a dry place in mass. And if in the yard, blended with the dung of neat cattle and litter, no injurious fermentation, or wastage, would take place before it would be wanted for the hoed crops, and to which it is always best applied.

“In Lanesboro,” says the report, “in one of the neatest establishments which I ever witnessed, there was a little contrivance connected with the doors, the convenience of which was admirable. The doors were none of them swung upon hinges; but run upon small wheels, and were made to slide in by the side of the wall. These wheels or trucks were attached to the upper end of the door, by a small wooden ledge, by which the door was suspended. The door when opened was entirely out of the way. It could be opened a greater or less distance at pleasure. There was no groove at bottom to become filled up with dirt, and ob-

struct the opening of the door; and there was no occasion of clearing away any snow or accidental obstruction from other matters, which might be accumulated in front, in order to open it. There were also none of the usual troubles of the door being lifted from its hinges, or being slammed and broken by the wind. It was but a small affair, but accomplished much convenience; and is of a piece with every other part of this neat and exact establishment.”

THE SHAKER ESTABLISHMENTS

In Berkshire, receive high commendation from the commissioner, as models of order and neatness; a compliment not withheld by any one who visits them. A magnificent circular stone barn, belonging to the society at Hancock is described, three stories high, ninety-six feet in diameter, and capable of stowing three or four hundred tons of hay. All the hay is deposited in the centre, around which is the drive-way, in which several teams may be unloading at the same time. The carts pass into the second story, and the cattle are lodged in the lower one. The society manufacture all their woolen fabrics from their own wool, and carry on the broom making business on an extensive scale.

EXPERIMENTS AND IMPROVEMENTS.

This chapter consists of various experiments in raising and feeding out farm crops, destroying insect enemies, &c. The results are not sufficiently uniform, or the experiments were not conducted with sufficient accuracy, in many cases, to enable us to draw from them profitable conclusions. Indeed many of the results are contradictory or unsatisfactory. They consist of,

1. *Experiments with the potato.*—Several are detailed to ascertain the most economical mode of using seed, and in feeding them to stock. The commissioner remarks that, in his opinion,

“If a large crop is desired, the seed should be planted in drills, the rows being about two and a half or three feet apart, and the sets placed not less than a foot apart in the rows, that they may be mainly cultivated with the plough. They should not be planted deep; and they should be kept clean. In general few plants are cultivated in a more slovenly manner. Under good cultivation few plants afford more valuable food to an acre. They are, however, I believe, an exhausting, and not an ameliorating crop. They return little to the soil, and the most universal experience is that wheat does by no means so well after potatoes as after Indian corn.”

We think that medium sized seed should be preferred; that new seed, grown on a different soil, should be employed every two or three years; that when cultivated in hills a single whole tuber may be used, but when planted in drills, the seed should be cut,—that unfermented manure should be spread broadcast for the crop, and ploughed under; that they should be fed raw to neat cattle, horses, &c. and cooked for swine.

2. *Carrots.*—The product of this crop is stated at from 600 to 1000 bushels an acre. The expenses of the crop are stated from four to nine cents per bushel. The commissioner recommends deep and frequent ploughings, sowing upon ridges two feet broad, the plants thinned to 8 or 12 inches, and that they be harvested with the plough. With the products and expense of culture stated, the carrot is unquestionably a very profitable crop. Their intrinsic value, for every kind of farm stock, may be safely stated at 18 to 25 cents per bushel.

3. *Ruta baga.*—The weight of opinions in Berkshire seems to be decidedly in favor of this root, as a profitable crop, and as an economical food for farm stock; yet there are some who think little of the crop. Every new article of culture has strong obstacles to encounter, before its value can be fairly graduated. It has first prejudices and old habits to combat. There are too many that are always prepared to reject and ridicule whatever they do not themselves originate or introduce. In the second place, the culture of a new crop is often imperfectly managed, and unnecessarily expensive; and many reject a good thing merely because their first efforts are unsuccessful. And there is no class of people who draw more hasty conclusions in these matters, or who are more pertinacious in adhering to old habits, than farmers. The turnip culture had the same prejudices to encounter in Britain that it meets with here; yet still it triumphed there, and it will triumph here—for our soil and climate are as congenial to its growth as the soil and climate of Great Britain and Germany; and it can be made as useful here, in farm economy, as it has been made in Europe. No one now doubts its important advantages in British and German husbandry.

We think the commissioner underrates the value of this root, when he says “they are by no means as nutritious as potatoes, especially those kinds of potatoes which are most farinaceous; and they are not comparable to the carrot, or parsnip, or sugar beet for feeding stock.” The inference that the common reader would draw from this sentence, would be that the ruta baga is the least profitable of all the root crops; and we think precisely the reverse of this to be the case; and for these substantial reasons: 1st. Because they give the greatest average product; this being about four times as great as in the potato. 2d. Because they occupy the ground the shortest time, and are cultivated and harvested, with proper tools and management, with far less expense than other root crops. And 3dly. So far as accurate experiments have been made, their fattening properties are as great, or greater, for neat cattle, as either those of the potato or beet, pound for pound. For proof of the latter fact, we refer to the experiments made under the direction of the Highland society, as noticed in the report upon root culture, in our March No.

There are many other experiments recorded, and re-

sults and conclusions stated, which are of but secondary importance; for instance, one gentleman found no benefit from applying lime to his wheat crop; but neither the condition of the lime, nor the quantity are stated; another thinks ploughing in seed wheat better than harrowing it in; another thinks he finds great benefit in harrowing his fields eight or ten days in succession, after the wheat has been sown; another finds that grass is much better after corn than after potatoes, &c. &c. A case is stated of wheat being raised for 20 years in succession in Chelmsford, at the rate of 20 to 30 bushels the acre, with but a single failure; and what is remarkable, the soil, on analysis, was found to contain neither carbonate of lime nor alkaline salts, though the sulphate and phosphate of lime were detected in very small proportions. The commissioner, we think, presumes too much upon this and other facts, in concluding that there is “no difficulty, under proper management, of cultivating wheat in the primitive soils of New-England.”

A case is cited, in which the application of lime to wheat, when the dew was on, was supposed to have saved the crop from the ravages of the grain-worm.

AGRICULTURAL SOCIETY.

This society is very justly commended. Says the report,

“It is remarkable, that in every part of the county, among the farmers themselves, who, as a class of men, are generally distrustful of the advances of such associations, and seem in such matters oftentimes as well skilled as their oxen in the art of ‘holding back,’ its utility is universally acknowledged, and a strong interest felt in its success. They are every where disposed, in this good matter, to pull together; and it would, as it seems to me, be difficult to find what is technically termed, an ‘off ox’ in the team.”

This was not always the case. The farmers of Berkshire, twenty and twenty-five years ago, were generally as shy, and as mulish, in regard to encouraging the society, as they are every where else, where the benefits of such institutions are not appreciated. It is to the persevering efforts of a few worthy individuals, professional and mercantile as well as agricultural, that the agricultural society of Berkshire has become what it is—an institution of great and palpable usefulness—and that all now cherish and feel proud of it. All now agree, that the best effects have resulted from its labors. “It has every where excited and cherished,” says Mr. Colman, “a spirit of generous emulation; and men of the highest distinction in the county for education, character, political standing and wealth, give their time and their zeal to its excellent objects.”

Like efforts and perseverance, from half a dozen individuals, will produce like benefits, and ultimately the like unanimity in public feeling in its support, in any other county, that it has produced in Berkshire; and there will redound to those who take and keep the lead, the high consolation, of having been instrumental in effecting a great public good, and of having overcome opposition and prejudice, by the exercise of a kind and generous philanthropy.

“Agriculture, in all its moral aspects,” the commissioner very justly and appropriately remarks, “recommends itself to the regard of every good mind. Emulation in this business awakens none of the bad passions, which are so often engendered by rivalry in other departments of life. One man's success in agriculture never injures his neighbor; but always tends to the general benefit. There is in agriculture no monopoly of improvements and advantages; and every effort, discovery, experiment or invention, by which the improvement of the art is advanced, and its productiveness increased, is a direct, substantial and permanent benefit to a town, to the country, and to the world.”

COMPARATIVE VALUE OF HAY, VEGETABLES AND CORN.

I wish briefly to draw the attention of farmers to the value of hay, compared with other crops, for the feeding of stock. An acre of hay yields one ton and a half of vegetable food. An acre of carrots or Swedish turnips, will yield from ten to twenty tons, say fifteen tons, which is by no means an exaggerated estimate. It has been ascertained by experiment, that three working horses, fifteen and a half hands high, consumed at the rate of two hundred and twenty-four pounds of hay per week, or five tons one thousand and forty-eight pounds of hay per year, besides twelve gallons of oats each per week, or seventy-eight bushels by the year. An unworked horse consumed at the rate of four and one-quarter tons of hay in the year. The produce, therefore, of nearly six acres of land is necessary to support a working horse by the year; but half an acre of carrots, at six hundred bushels to the acre, with the addition of chopped straw, while the season for their use lasts, will do it as well, if not better. These things do not admit of doubt. They have been subjects of exact trial.

“It is believed that the value of a bushel of Indian corn in straw and meal, will keep a healthy horse in good condition for work a week. An acre of Indian corn which yields sixty bushels, will be ample for the support of a horse through the year. Let the farmer, then, consider whether it be better to maintain his horse upon the produce of half an acre of carrots, which can be cultivated at an expense not greatly exceeding the expense of half an acre of potatoes, or upon half an acre of ruta baga, which can be raised at a less expense than potatoes, or upon the grain produce of an acre of Indian corn, or on the other hand, upon the produce of six acres of his best land in hay and grain; for six acres will hardly do more than to yield nearly six tons of hay and seventy-eight bushels of oats. The same economy might be as successfully introduced into the feeding of our neat cattle and sheep.”

These facts deserve the particular attention of the farmers who are desirous of improving their pecuniary condition. It is obvious how much would be gained by the cultivation which is here suggested; how much more stock would be raised; how much the dairy produce might be increased; and how much the means of enriching the land, and improving the cultivation, would be constantly extending and accumu-

lating. But when we find on a farm of two hundred acres, that the farmer cultivates only two acres of potatoes, one acre of ruta bags, and perhaps a quarter of an acre of carrots, we call this "getting along," in the common phrase; but we can hardly dignify it with the name of farming. I am aware that labor of a proper kind is in many cases difficult to be procured, and with our habits, as difficult to be managed.—Farming, likewise, can in few situations be successfully managed, unless the farmer has capital to employ, equal at least to one year's manure and one year's crops. A large portion of our farmers, also, from the nature of their habits and style of living, are so prosperous and independent, that they have no occasion to extend their cultivation beyond what it now is, in order to meet their wants; and to incur all the trouble, vexation and risk of employing more labor, expending more capital, and increasing their cares.

But it is not fair to produce such instances as any examples of profit or unprofitableness of husbandry, when carried on, as all other branches of business, to be successful, must be carried on, with intelligence, skill, industry, enterprise, and all the capital and all the labor which can be advantageously employed in it. I will not, however, anticipate such general views of the subject, as I propose to take in the retrospect of the whole survey.

Apples.—I should recommend strongly to the farmers of Berkshire, the cultivation of apples. The orchards are comparatively few, and many have been neglected from the best of motives, an unwillingness to favor the facilities of intemperance. But the value of apples for fattening pork and beef, and even for milk cows, so well established by innumerable experiments, and some cases rated as highly as potatoes, recommends them most strongly to increased attention and universal cultivation. The borders of our fields may be lined with them, the road sides may be planted with them; they may be scattered over our pastures, with little or no injury to the crops or the pasturage, if properly arranged.

Brick and Tile Machine.

A machine for manufacturing brick and draining tile is figured and described in the Farmers' Magazine.—The brick machine will mould 24 bricks per minute, 1,440 per hour, and, taking ten hours' work, would give 14,400 per day. A good moulder, with three or four attendants, will make 4,000 bricks per day. The machine, with the same hands, will make 15,000; with this advantage, that the latter will not require half the time to dry, in consequence of the compression which the clay undergoes, and that when burnt they weigh three pounds the heaviest—the mould brick weighing 5 lbs. and the machine bricks 8 lbs. The tile machine will make 10,000 drain tiles a day, with one man and two boys, and 20,000 flat tiles for the drain tiles to lay upon, both 15 inches long. Under the old mode, a man and two boys made but 1,000 drain tiles per day, 12 inches long. The tile made by machine is also much stronger than those made by the old mode, and they are capable of being made from much stronger clay. This machine promises important benefits, wherever tile draining is practised, and will greatly lessen the expense. We should like to see it introduced into this country, with the attendant benefits of under-draining. Draining tile are manufactured in this city, but the price (\$15 per thousand,) is such as to deter many from using them. With the machine in question, we are inclined to think they would be afforded at half the present price.

The Pie Plant

Is now coming into extensive use, though three years ago, there was little or no demand for it in our market. There are several varieties of the Rhubarb now employed for culinary purposes, among which are two which have been recently introduced, viz. the *Giant* and the *Tobolsk*, the latter first last spring. The leaf stems of the giant grow to a great size, twelve stocks exhibited by us at the late Horticultural Show weighing twelve and a quarter pounds. We think it makes a pie, if used before it is too old, as fine as any of the varieties. The quality of the *Tobolsk* we have not yet ascertained.

Early Rising

Is conducive alike to health, to pleasure and to profit—we mean to the farmer. To health because it gives exercise when the atmosphere is most cool, pure and bracing. To pleasure, because nature is then in her most lovely garb, and the birds most full of song. To profit, because the two morning hours effect more in labor, and avert more mischief, than four hours at midday. Early rising, and exercise in the open air, are the best stimuli for our meals, the best anodyne for sound sleep, the best solace for care, and the best evidence of thrift. "Come boys," is the best reveille upon the farm. The farmer who rises late, is generally behind his work; while he who rises early keeps before it.

Comparative value of large and small Turnips.

We have frequently alluded to the fact, that the ruta baga is the only cultivated root, that increases in nutritious properties as it increases in size. Sinclair found, on analysis, that a root of the common turnip, measuring seven inches in diameter, afforded only seventy-two grains and a half of nutritious matter, while the same quantity of a root which measured only four inches afforded eighty grains, or double what the large one gave. The largest root of the Swedish turnip afforded 110 grains, while the middle sized or smaller roots gave but 99. The Swede is stated to have grown to weigh 60 lbs. exclusive of tops and tails, in Van Dieman's Land.

The Army Worm,

A letter from our correspondent at Quincy, Ill. advises us, is making great ravages in that section of the

country. We can neither give the history of this new enemy, nor prescribe a mode of destroying them. They are in a measure unknown east of the Alleghany mountains. Yet, while penning this notice, our friend Rob. White, jr. of Shrewsbury, N. J. has called upon us, and informs that the army worm appeared in his neighborhood last season, and that this season its ravages have been alarming. When it enters a field it sweeps vegetation almost clean, eating the leaves and even the beards of wheat without disturbing the grain, and divesting the corn wholly of its foliage. Every attempt to check its progress, as trenches, &c. had proved abortive.

The Farmer is Neglected and Forgotten,

In the strife for office, the thirst for popularity, and the eternal contest for charters of all kinds. No reports of any value, no bounties or premiums for new agricultural productions, which might add millions to the wealth of a state, are even thought of for a moment. Because we ask for the least we get nothing. An agricultural school cannot be established, because it might give more power to the dominant party; a pattern farm cannot be established, because it may increase patronage. Where and when is this to end, if we do not take up the matter ourselves, and urge it strongly upon those who call themselves the public servants?—*Correspondent of the American Farmer.*

Miscellaneous Items.

Baldwin's Portable Press.—For hay, cotton, &c. is spoken of in the American Farmer, with high commendation, and is likely to save one-third the cost that is now required in the common hydraulic and screw presses. One great advantage of this new press is, that it is portable, and may be placed alongside of the hay-rick, or in the meadow. A common carpenter can make one at a cost of \$20 to \$25. It will express cider, it is said, without grinding the apples. The address of the patentee, or proprietor, is not given.

An Improved Corn-Shell.—is announced in the same paper, by Wm. Carmichael, of Wye, Queen Ann county, which will shell fifty bushels an hour, by hand or horse power. A two horse power costs \$55.

Cerography, is the term applied to a new mode of engraving, for the common letter-press, of maps, music, &c. which promises greatly to reduce expense. The New-York Observer contains a well delineated map of Connecticut, ten by twelve inches, with the names and divisions of towns and counties, and the rivers, roads, &c. as fair as many copper-plate maps, worked off upon the common news press. The editor claims the invention as his own. From what we can judge from the sample, it is likely to prove a very valuable discovery.

Diminution of Neat Cattle in Vermont.—It appears from official returns, that the number of cattle in Vermont underwent a diminution, between 1832 and 1837, of more than 40,000 head; and that in the same period the number of sheep was increased one million. In regard to the exclusive sheep husbandry, Mr. Coleman gives the following relation, as an evidence at least of the inconvenience, which is liable to result from it.—"Two years since, some of the best families in the county of Berkshire were without bread of any kind for a time, from the impossibility of obtaining it. They were persons, for example, who worked for the large wool farmers. They asked for money for their labor; but money was not to be had, because of the clipping of wool, owing to the derangements of business, had not been sold. They asked to receive their pay in grain; but the wool farmers had abandoned all cultivation, for the wool husbandry. They asked for their pay in pork; but the farmers who raised no grain, could raise no pork."

Improvement in Pin-making.—In Britain, pin-making is divided into seven different processes, and the pins, ere they are fit for market, pass through seven sets of hands. Babbage shows, that one-half the expense of manufacturing is saved by this division of labor. Messrs. Stourm, Jilison & Co. of Poughkeepsie, by a new invented machine, have reduced the manufacture almost to a single process. "The wire of which the pins are made," says the Poughkeepsie Journal, "is taken into the machines, and the process of making the pins, with solid heads, all from the wire, is completed by the machines, leaving nothing remaining to be done, except the washing and placing them upon papers. One man will attend two machines, and each machine will turn out 100,000 pins in eleven hours. The proprietors have now two tons on hand, of a quality far superior to all others."

Extirpation of Garlic.—Thomas E. Bond, in the American Farmer, says he has wholly destroyed the wild onion, in fields which have been over-run with it, by first cultivating them in corn, and, after the corn was gathered, ploughing the field again, and leaving it exposed the succeeding winter in the state the plough had left it. The same gentleman says, that *M. Johnson*, another troublesome weed, may be killed by a single ploughing in the early part of June, when it is in blossom, provided the ploughman, by means of a heavy chain attached to the plough, in the usual way, covers the plant effectually. If completely covered it will die.

A sale of Durham Cattle, belonging to Messrs. Gratz & Cooper, took place near Lexington, Ky. on the 14th June. Three males sold for \$900, \$280 and \$760; and seven females for \$601, \$630, \$631, \$700, \$861, \$446 and \$1,050—average \$685.90—as stated in the *Franklin Farmer*.

Bloody Murrain.—It is stated in the *Franklin Farmer*, that this complaint has been cured, in its last stage, by simply giving the animal two doses of sugar of a pound each, mixed with water.

Salt your Fruit Trees.—A writer in one of our exchanges, mentions a decaying plum tree that stood in the midst of an asparagus bed, which, on dressing the bed copiously with pickle, began to revive and became healthy and fruitful. He accordingly recommends the free application of salt to such trees—presuming it will produce a similar effect.

Whitewash for all Buildings, inside or out.—Take clean lumps of well burnt lime, slacked. Add one-fourth pound whitening or burnt alum pulverized, one pound of loaf sugar, three quarts of rice flour made in a thin well boiled paste, and one pound of cleanest glue, dissolved as cabinet makers do. This may be put on cold within doors, but hot outside. This will be as brilliant as Plaster of Paris, and retain its brilliancy for many years. The east end of the president's house in Washington, is washed with it.—*Cincinnati Chron.*

Whitewash is one of the finest things in the world to promote health and cleanliness. It also covers up a multitude of dirt, as a cloak conceals the rents in an old garment. Some farm houses look black and unsightly, while the crevices in the wood admit the rain. Perhaps they are not worth painting—but a coat of whitewash, which costs but a few hours of labor, with water and lime, does the work. They look fresh and clean, and during a year the wash is soiled but little. We commend a coat of this to every man who has an unpainted house, both on the score of beauty and taste, as well as for cleanliness and the preservation of his building.—*Northampton Cour.*

Stopping a leak.—The best thing for stopping a leak in a cask is whitening beaten up with common yellow soap. If this mixture be well rubbed into the leak, it will be found to stop it after every thing else has failed.—*Farm. Cabinet.*

Short-Horned Cattle.—Never think of buying short-horned or Durham cattle, until you are prepared to keep them well. They need an abundance of fresh pasture, and therefore to be frequently changed from one pasture to another, in succession, and plenty of food and good shelters in the winter. Thus provided for, they are valuable stock. But neglected in these respects, they are little better than native cattle.—*Franklin Far.*

Productive Cows.—A short-horn, belonging to Mr. Wolbert, Philadelphia, gives daily 27 quarts of rich milk, upon ordinary feed; from which 14 lbs. of butter were made in a week. A cow belonging to Mr. Gowan, of Germantown, gave an average of more than 28 quarts of milk per day, for a week.

THE BUDGET.

Culture of the Strawberry.—R. Mansfield will find an answer to his inquiries in the Cultivator for August, 1838. August is a good season to transplant the strawberry.

Disease of Dutton Corn.—George H. Patrick, of Kanawha C. H. Va. states in a letter to us, that his Dutton corn, when about two feet high, showed symptoms of disease and death; that on taking up some plants he found, on applying the magnifying glass, a small green bug upon the roots, some of which were literally covered with the insect; that his other corn did not seem to be affected; that the seed of the Dutton corn came from us; and he inquires whether it did not become impregnated with the ova of the insect during its soft milky state, the same as the pea—and whether the contagion, or insect, is not likely to spread to his other corn. We are unable to explain the matter. Nothing of the kind has ever appeared in our crop, or has before ever come to our knowledge. The ova could not have been deposited in the seed, but why the animalcula attacks only one variety we are unable to guess.

Mr. Patrick adds—"The root culture has just commenced with us. Many are putting in small lots of mangold wurzel, parsnips, &c. and will put in, in due time, ruta baga. The Cultivator and the formation of our agricultural society, with premiums offered to the amount of five hundred dollars, has given us such a spirit of improvement in agriculture, that I am much in hope, with your assistance, we shall not return again to the old mode of cultivating the soil." We beg Mr. P. not to forget his good intentions.

Manual Labor School.—We are requested by a correspondent, to notice a select classical manual labor school, which has been established at Montvue, post-office Middletown, Frederick co. Va. by the Rev. JOHN LOPOR. The manual labor may be voluntary, and is intended as a healthful exercise, and as a means of defraying the expense of tuition.

The Rohan Potato.—In reply to the inquiry of Mr. Harris, of Orange C. H. Va. we state, that this potato should be cultivated like other potatoes; that the seed, that is balls, should be gathered when they have matured, be dried, preserved from frost, and sown in the spring, in a bed of fine mould, and taken care of like other plants.

Price of Animals, &c.—A correspondent at Columbus, Miss. writes as follows:—"I perceive you have commenced inserting advertisements. I wish you would impress upon those who offer articles of any kind for sale, the propriety of stating the price. I am aware that many do not like to make their price public; but those abroad could often make up their mind about what is offered by knowing the price; that is, many would know if their means would allow them to pur-

chase." The drawings, &c. of sheep teeth, sent us by a correspondent, were inserted in our second volume, p. 188.

Acknowledgments.

"The District School as it was," from the author.—This is an excellent picture, delineating, in vivid colors, the defects of the old system of instruction.

An assortment of thirty kinds of Cape Bulbs, in fine order, from Jonathan Edwards, Esq. of Troy, collected in South Africa, by the Rev. Geo. Champion.

From Dr. A. Walcott, of Clinton, Ct. through W. C. Wilcox, a box of "Patent Restorative," for the purpose of restoring to the earth its original fertility. This article, Mr. Wilcox informs us, "has lately been discovered and manufactured by Dr. W. after a series of observations and trials. For one acre of grain or grass, two bushels of the preparation would be sufficient; Indian corn would require three bushels—to be sprinkled on the surface after ploughing and harrowing."

Chenango Potatoes from J. G. Buswell. These potatoes are old acquaintances. We received a barrel from a friend in Lancaster county, Pa. in 1827, under the name of Mercers, cultivated and liked them. We sent a barrel to Boston, in 1828, containing samples of Mercers, Pinkeyes, and Kidneys or Foxites, and our late friend Fessenden, then editor of the N. E. Farmer, pronounced the Mercer to be best. Yet as they then had not got their name up, no one would buy them, and we discontinued their culture—for those who raise for market must suit the taste of their customers, and not their own. We are glad to recognize our old acquaintance, and feel pleased that they have come into deserved favor.

A highly finished scythe snath, the donor's name mislaid and not remembered.

Prof. Jackson's Geological Reports, from Mr. Webb, of Boston.

"Agricultural" and "Horticultural" Razors, from A. Walsh, Esq. of Laingsburgh.

Agreeable to our proposition, we shall issue our next No. on the 15th Aug. and shall insert in it the essays and diagrams on farm dwelling-houses.

CORRESPONDENCE.

The Sugar Beet—Queries.

Guilford, near White-Post P. O. }
Clark Co. Va. July 3, 1839. }

JUDGE BUEL—Sir—I have recently become a subscriber to, and a constant reader of your valuable and interesting paper, the *Cultivator*, and as I desire information respecting the culture of the sugar beet, I am sure it will give you pleasure, thus to promote improvement, by diffusing useful knowledge.

A member of my family being about to commence farming, on what we consider here as a small scale, a farm of 200 acres, which, in ordinary seasons, will produce five or six barrels of corn, or twelve or fifteen bushels of wheat to the acre, wishes also to combine with it, the culture of the sugar beet, if, after inquiry, it shall be advisable to do so. It is limestone land, of a light soil, and the cleared parts much exhausted by excessive cultivation, until the last thirty years, when it changed hands, and since then has been gradually improved to the state above mentioned. The part in woods contains black oak, white oak, hickory, walnut and ash. From this description of our lands, you will, perhaps, be able to decide whether they are adapted to the sugar beet.

In a letter, published in the *National Intelligencer*, a few months ago, from Mr. Ellsworth, the commissioner of patents, he stated that an acre of good land would produce twenty tons of the sugar beet, which would make 3,600 lbs. sugar, worth seven cts. per lb. Now if our lands would yield the half or a fourth of that quantity, it would be infinitely better for us to go to making sugar at once, instead of raising corn and wheat at a heavy expense, while the seasons are so precarious, and the prices so fluctuating.

You stated, in a report on "root culture," in the March number of the *Cultivator*, for 1839, that "from the high state of perfection and of profit, which the business has arrived at in France and Germany, that the culture of this beet will soon be extensively gone into in this country, for the purpose of making sugar." In this opinion, sir, I fully concur, but how to obtain the information which is requisite to enable us to begin a business so entirely new here, is the difficulty I desire to remove. Will you, then, or some of your correspondents, do me the favor to say,

1st. What is the best time and mode of preparing land for the sugar beet?

2nd. Whether it is best to sow it broad-cast, or in drills, when land is cheap and labor dear, and what would be considered a reasonable crop, from land rich enough only to produce six or seven barrels of corn per acre?

3d. How many acres in beets can one hand cultivate, supposing him to have little else to do?

4th. What is the best way of preserving them in winter, where there are no root houses for the purpose?

5th. Do you know of any individual, or company, in New York or Pennsylvania, or even nearer to me, that is engaged in the manufacture of sugar from the beet?

6th. Can you inform me what such a manufactory would cost, and whether it is worked by water, steam or horse power?

7th. What is the practice in France or Germany, amongst those who cultivate the sugar beet, in regard to its manufacture? Does the farmer make his own sugar, or are there public establishments, like our mills, and the manufacture of the beet a distinct occupation from the raising of it? Since the plan of kiln drying the beet has been adopted, it would, I presume, bear transportation to market as well as other products.

8th. Is there any French or German work, (translated into English,) on the subject, in the book-stores of New-York or Philadelphia, that you can recommend?

Any information, not embraced in the above interrogatories, which may be deemed pertinent to the occasion, will be, I assure you, sir, most thankfully received, by your very ob't. and humble serv't,

JAMES M. HITE.

ANSWERS.

We are not practically acquainted with the beet culture or the manufacture of beet sugar. We have published in former volumes, the best information we could obtain; but the business has been undergoing constant improvement in France and Germany; and it is upon this improved management, the details of which have not yet been made known to the American public, sufficiently to guide in the practice—it is upon this improved system of management that Mr. Ellsworth has based his calculations. We have no doubt but the business will be ultimately introduced and made profitable, when judiciously managed; and we have no little doubt that it will prove to many a losing concern. We would rather be a follower than a pioneer in it. Inviting from correspondents a more general answer to Mr. Hite's queries, we will content ourselves for the present, with responding briefly to some of his inquiries. And.

1. The best time and mode for preparing land for the beet, is to apply manure to the previous crop, and to deposit the seed immediately after the preparation is completed, upon the fresh turned soil.

2. The seed should be sown in drills—to save labor. A reasonable crop would be from five to six hundred bushels.

3. A man can tend half as much ground in beets as he can in corn.

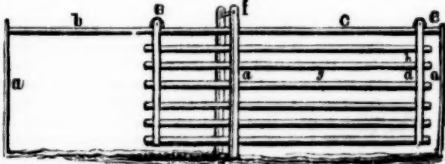
4. The beets have been preserved in the manufactory in France. They may be preserved in pits. If dried, they may be preserved wherever they can be kept dry.

5. We can give no particular reference.

To the other three inquiries we can give no satisfactory answers, but the coming six months, we hope, will afford us the means of being more explicit in the matter. We will not withhold from Mr. Hite, our impression, that the climate of Virginia is not well adapted to the culture of the sugar beet—that it is too far south—the root in the south of France being far less rich in saccharine matter than that grown in the northern departments. We do not pretend to determine the beet zone; but we are inclined to think, that upon our Atlantic border, it is north of 42°.—*Cond. Cult.*

Plan of an Improved Gate.

[Fig. No. 21.]



Plattekill, 6 mo. 24, 1839.

RESPECTED FRIEND J. BUEL—As I was perusing the last number of the *Cultivator*, I observed the description of the revolving gate. I think that I shall be doing good rather than hurt to send thee a description of one of those that I erected last summer; they are new with us and may be with you. I find them to surpass all others that I have ever seen; and I doubt not but what thy correspondent will acknowledge with me after he has seen them fully tried. I think it is a duty that we owe to one another to impart instruction, and at the same time be willing to receive it; and I hope that none will forget that we may live and learn all our days. As I have taken the *Cultivator* for two years past in company with another gentleman, I may say that I feel highly thankful for the knowledge and many benefits that I have received from the pages of that most noble paper.

It is made as follows: set three posts, 6 feet 6 inches high, of an equal distance apart, one extending along the fence in the direction that would best suit for the gate to slide. I send thee a drawing of this gate, to enable thee to understand it the better: *a a* posts, *b* crosspiece nailed fast to the back and middle posts for the gate to roll upon, (*c* crosspiece); when the gate is slid open, it will rest upon the point of the crosspiece *b*; then the crosspiece *c* is at full liberty to be taken out: *d d* cleats which are nailed thoroughly on each end of the slats, and extend to a sufficient height to straddle the crosspieces, in which is inserted the rollers *e e*, which are made of cast iron with us, which are preferable to wood; *f* cleat which is nailed on the middle post after the gate is hung, with sufficient pieces of wood, or what some carpenters style furring inserted, to admit the gate to slide with freedom; *g g g g* slats, the ends of which are admitted to extend an inch through the front cleats, for the purpose of striking into some mortice which is made in the front post: or else by nailing on cleats. I made them by nailing on strips of inch boards; *h* hook to hook it fast if needful; I never have found it necessary. The above represents a gate partly open.

I hope that no person will raise any objection to these gates till he has tried them; then I think he will have none to give.

Any farmer can make one with the aid of an axe, saw, hammer and nails, in six hours' time. They are very simple, and cost not more than one-quarter that of ordinary gates, and many advantages that I might mention. Thine most respectfully,

STEPHEN TABER.

Early Rising.

Hon. J. BUEL—Dear Sir—As your paper has a very extensive circulation, I desire to present before your numerous readers, a few arguments in favor of early rising. The couplet of the sage, so long familiar to the community generally, contains much more truth than men practically believe:

"Early to bed and early to rise,
Will make one healthy, wealthy, and wise."

Many who have pursued this course, have enjoyed much better health and other comforts than many others who have pursued an entirely different course. The reasons for this may be very obvious to those who have reflected upon it with only a little attention, especially if their practice has been in accordance.

In the first place, our Creator has hung out the sun from the heavens, for the benefit of his creatures. If we lie in bed after his precious rays shine around our habitation, we deprive ourselves of much comfort, which we might have enjoyed in the sublime and beautiful sight of beholding the trees and distant hills, first enlightened by his golden beams. Besides in the spring and summer seasons, especially in country places, where farmers generally reside, those who sleep until after the sun has arisen, lose most of the pleasure and benefit which they might have by listening to the inimitable songs of the feathered tribes.

Again—the farmer and gardener need to be early abroad to prevent the intrusion of many enemies upon their crops, or to banish them soon if they appear. Some have never seen, for instance, the cut worm, in the very act of his depredations; but after the sun has risen, they have often had painful demonstration, while standing by their fallen plants, that such an enemy is in existence. Had they been in their garden or field as soon as the dawning day, carefully watching by the side of their plants, it is at least possible they might have been convinced how the work was accomplished.

Again—many complain that their vines are destroyed by the little striped bugs, and before they have opportunity to destroy them, they take wing and fly away, ready to return again at their own convenient time. I would say to such, be at your post a sufficient time before the sun makes his appearance, and you may secure many of them from further depredations.

Once more—many plants may be essentially benefited by stirring the dirt around them every morning, while the dew is on. Their growth may be promoted, and often the effects of drought prevented, and many other benefits obtained. Some plants, it is true, may receive more benefit to be hoed when the dew has disappeared, but enough may be benefited to occupy an early hour. Will you make the experiment? Will you in future rise early?

The Season, Crops and Insects in South-Carolina.

Oakley Farm, Chester District, }
S. C. June, 27, 1839. }

JUDGE BUEL—We are suffering here severely from drought. The whole spring has been dry—our gardens are burnt up, without having yet given us anything; from 6 beds of peas planted in succession, I have not had half a dozen messes; our corn is in a most deplorable state, now tasseling-out—wilted and must soon perish if we do not get rain in a few days. We have had but one rain to wet the earth below the furrow of a shovel plough since the 8th of May,—and very little all April. We have, notwithstanding, made good crops of wheat for us, where it is not generally sown as a market crop,—and commonly put in very carelessly for family use.

Though we are not yet afflicted with the "grain worm," nor much injured by the Hessian fly, a pest has appeared among us within the last two years, which from their prodigious numbers and destructiveness threaten to be even a more serious evil to us. They are called chinchbugs in Va. though they have no resemblance to our domestic pests but their disgusting smell. They are nearly the shape and size of the small black flour weevil; can fly, but take to their wings reluctantly; have no mandibles, but a proboscis with which they penetrate the stalks of plants near the joints, and suck them to death. They have destroyed my oat crop totally: I shall not make the seed sown; my white May wheat (harvested 28th of May) came to maturity too early for them, and was but slightly injured; but my white bearded wheat (harvested 12th of June) was seriously injured by them,—many ears not having a single grain filled in them. Bad as this is, it is nothing to what followed; for as soon as the small grain was cut, they took to our corn fields in such myriads as is inconceivable to any but those who have witnessed them; I have seen some of my corn so perfectly black with them for two feet up, no particle of green was to be seen but 5 or 6 inches of the tips of the leaves; and they hung to the under parts of them in knots like little swarms of bees. It takes them only one or two days to destroy the corn; from such an attack I saw no remedy but burning them up, corn and all; and by promptly doing so in that part of the field into which they first migrated in such immense numbers, hope I have saved the rest of it from total ruin—though patches of corn in some of

my other fields have been totally killed. This is indeed a long letter about a little thing, and just to ask you, sir, if you know anything about them, and what would be the best remedy against them? and trusting you will excuse the trouble of this, I remain, respectfully,
W. S. GIBBES.

New Husbandry, &c.

Mocksville, N. C. June 18, 1839.

JUDGE BUEL—Dear Sir—In recommending the new system of husbandry to our farmers, I meet with two objections to it; one is, that we have too much cleared land to manage our farming in that way; and the other is, that when a man is in debt, and is obliged to have a certain amount of money from his crops every year, he can't enter upon that plan, as his crops would be lessened for some years, and therefore he could not meet his engagements. I think the first objection is very correctly answered in the March number of the Cultivator for this year, in your reply to the inquiry of John Ogilvie, of Virginia, as to Agricola's farm; and I would like to know your opinion, as to how long it would be before a man's crops would yield the same return, under the new plan, that it now does under the old, the same amount of labor and capital being employed in both cases, taking it for granted that his crops would be less at the start in consequence of his tending so much less land, a small part only of which he could manure the first year.* I can add my testimony in favor of Green's straw cutter. I have procured one, and it performs first rate; every one is pleased with it who has seen it perform.

I soaked a part of my seed corn this year upon your plan; it came up well, and grows more rapidly than that which was not soaked, and was scarcely touched by birds or squirrels, while that which was not soaked and planted along side of it, was taken up badly by them. I don't think soaking seed corn is so necessary in our climate, as it is in a more northern one.

Will Irish potatoes intermix, by planting different sorts along side of each other? The above is at your disposal. Enclosed are \$11, for as many copies of the Cultivator for this year. Accept my acknowledgments for the box of potatoes and corn, which came safe to hand; the Rohans were perfectly sound, the others were a little damaged. Respectfully,
C. HARBIN.

Queries and Answers Subjoined.

Michigan, June 14, 1839.

Mr. BUEL—Dear Sir—Being somewhat anxious to obtain something like answers to the following questions, or queries, and being sure that I cannot resort to a source from which I shall be more likely to gain the information I so greatly desire, and believing them to be within the design of your invaluable paper, I am encouraged to ask the favor of your honor.

In rearing a nursery of fruit trees, is it best to sow the seeds in beds, and transplant the trees, or should they be sown where they are to remain until fit for the orchard? *Answer*—Sow in beds and transplant.

What distance from each other should they stand in the nursery? *Ans.*—One foot in the rows, and the rows three feet apart.

Can all or any of the various kinds of fruit trees, be raised from the scions by cutting, as for grafting, dipping the ends cut in melted pitch, &c.? *Ans.*—No fruit trees, that we now recollect, will grow well from cuttings, but several of the fruit shrubs, as the quince, currant, gooseberry, &c. will grow from cuttings. The roots of most fruit trees, as the plum, apple, pear, &c. if made into cuttings, will grow, if properly buried.

Will the trees from the stone of the peach, plum, cherry, apricot, &c. produce fruit of the same quality as did the trees on which they grew? *Ans.*—Very seldom. The seeds cannot be depended on to produce like the parent plants.

* We mean explicitly to state, that if a man has one hundred acres of ordinary land, which he wants to plant in corn, and but three hundred loads of manure to put upon it, he had better bestow his manure and his labor upon twelve, than upon the one hundred acres. His labor will be lessened two-thirds at least, his products will be greater, and the eighty-eight acres, which is left to rest, instead of being further run down, will be in some measure renovated by the herbage which grows and decays upon them. The herbage of an acre will keep alive ten sheep, will keep in good condition six, and will fatten four. Would the owner, who was in haste to convert his sheep into mutton, and to realize the avails in cash, find it most profitable to feed his acre with ten, or six, or four sheep? So with corn, it will live without manure, upon poor lands; it will grow without manure, upon lands which are in tolerable order; but it will only give a remunerating, or a very profitable crop, when highly fed, or manured. Bordley rated the average product of corn, upon the eastern shore of Maryland, at 15 bushels an acre. We say, that the average product here may be raised to 30 bushels per acre. Charge the crop with us \$25 for the 25 loads of manure; estimate the grain at 75 cents per bushel, and the expense of culture at \$15. The one hundred acre corn farmer then expends \$1,500 in labor, and gets \$1,145 for his crop—loss \$355. The twelve acre corn farmer expends \$180 for labor, \$273 for manure—total \$553—and gets for his corn—12 multiplied by 30 is 360—the gets for his crop \$270—net profit \$165—thus showing a difference in the net profits of the twelve acres, highly manured, of \$520, in a single season, upon the data of calculation we have assumed, over the one hundred acres planted without manure. Mr. Harbin will see from this estimate, although it may be termed an extravagant one, that a maize crop would yield, immediately, a far better return "under the new plan, than it does under the old."—*Cond. Cult.*

† They will not.

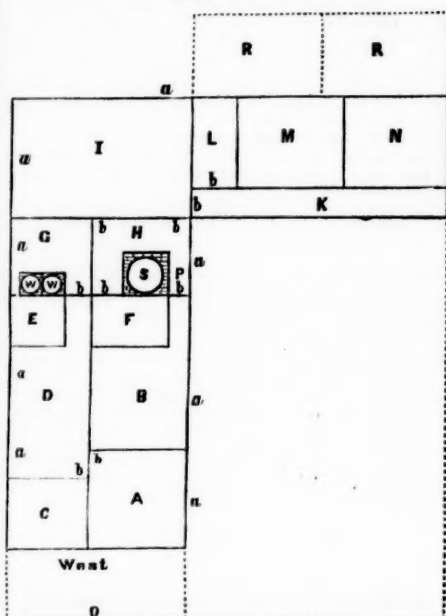
Which is the best time, (fall or spring,) to remove trees, say from the state of N. Y. to Michigan or Wisconsin, and how early in the fall, or how late in the spring, may they be taken up for that purpose? *Ans.*—We have sent them at both seasons, in autumn generally by the way of New-Orleans, and in spring by way of the Ohio canal or Chicago. They may be removed, in autumn, so as to reach Cleveland or Detroit before the 1st November, and in the spring as soon as the canals are navigable, say the 12th April.

What are the names of the choicest apples, pears, &c. known in your section of the country, and where can either or both scions and trees fit for orchards of such choice fruit be had? *Ans.*—A list of good pears will be found in the May No. of the Cultivator. A list of apples and other fruit will be forwarded to our correspondent, when we know his address. Address J. Buel & Co. nurserymen, Albany.

An answer or an opinion relative to the above, or to any part thereof, will be very thankfully received by at least one
SUBSCRIBER.

Ground Plan of an Out-Building.

[Fig. No. 21.]



In this plan, the dotted line O, represents the west fence, or line of the road, which runs north and south, or nearly so; the house west of the kettles is of brick, and two stories high; that part east of the kettles, of wood, and is only one story; the wing that runs south, is covered with a shed, the use of which may be described in some future communication, as what I have here sketched is all intended to represent cellars and piggery. The ground rises gently from the road to the centre of the building spot, and then falls rapidly, so as to give a chance for the hog-yards, R, R. In the figure, A, is a cellar 14 by 15, for garden sauce and ruta bagas. B, potato cellar, same size, with communications to empty potatoes by window a, from cart body to cellar, with access through door b to swill kettle S. C, Ice cellar. D, Meat cellar, &c. E, Brick cupboard, flat stone for bottom and top. F, Ashery, communicating with kitchen fire-place above, flat stone covering top and bottom of this also. G, Wash cellar. H, Swill room. I, Wood room, communicating directly with wood room above. K, Alley, 4 feet wide, where we feed hogs and pass out door at south end of shed. L, Meal room, 8 by 14, where hog meal is kept, and communicates by a tube or tunnel with the meal room above, so as to carry hog meal from door yard in front of the shed, into the meal room in the shed, and pass it through the floor into the hog meal room. M, N, Hog-pens, 14 by 16; here we have Heaton's plan for feeding hogs, with a slight variation. O, Fence. P, Lead pipe, furnishing cellar and kitchen with water, and thus passing out at east of cellar, through window a, from which we water our hog-yards. R, R, Hog-yards, with doors hung at top, so that hogs open them and their own heft shuts them; height of doors 2½ feet. S, Swill kettle. W, W, Wash kettles. a, a, &c. Cellar windows, with cast iron sash. b, b, &c. Doors.

Perhaps it will be proper here to state, that we adopted a new plan in building our cellar wall, which was this:—We in the first place commenced a very thick wall of split granite, and after carrying it to the height of four feet, or half the depth of the cellar, we made an offset or jog of five inches, which carried the face of the wall five inches further back, on the upper than on the lower section or half of the wall; that is, five inches farther towards the bank. On the offset, (for so I must call it, not being master of our language sufficiently to apply a better name,) we commenced a course of brick, leaving a space of one inch clear between the lining and wall, and carrying it quite to the top of the underpinning, where it was thoroughly connected and bound to the underpinning, which is of hewn granite; and the top of the lining, together with the underpinning, presented

a surface of 17 inches wide, which was sufficient to receive the wall of the house, which was 12 inches, leaving 5 inches on which the floor timbers rest. Thus we have placed an effectual barrier against that enemy of cellars Jack Frost, and this, too, with but single glazing, giving the light of the sun free access to our cellars in all seasons, and making the swill room so warm that swill will not freeze in the coldest weather; and even our hog-pens are so warm, (being walled on the west side of the pig or hog-pen alley, and at the north likewise, and the east and south well boarded, accompanied with self-shutting doors, for the ingress or egress of the swine,) that it requires severe cold weather to freeze the swill even in the troughs. The two story or brick part of the house extends from the west end to the line separating the three kettles from the brick cupboard and ashery, or smoke-house, where the east end of the brick part commences, at the bottom of the cellar, carrying with it the flues for the kettles, together with the smoke of four fire places in the lower story and two in the upper, and this all in two chimneys, so that these with two small ones at the west end of the house, accommodates our whole farming establishment as to chimneys. W. C. Fairlie, Orange co. Vt. June 22, 1839.

On the Application of Manures.

Fredericksburgh, Va. June 18th, 1839.

J. BUEL—Dear Sir—In your paper for the present month, I have read the following intimation: "a subscriber wishes Mr. Garnet's opinion of the best method of applying manures to land;" and presuming that I am the person meant, I avail myself of the earliest opportunity to evince my willingness to gratify him. But as no man's mere opinion on such subjects, is worth any thing without the facts and reasons upon which it is founded, I shall take it for granted, that he desires to hear both, and will therefore state them together.

Whether your subscriber means by the term "manures," all things commonly so called, or only putrescent substances, I have had but one opinion for a long time, in regard to their application, and this has been confirmed by all my subsequent experience, each year adding something to the great mass of consananeous facts. When my attention was first turned to this subject, some thirty-five or forty years ago, I had adopted, but without examination, the notion then most common amongst us, that it was best to let all putrescent manures be well rotted first, and next, to bury them deep, either by the plough, spade, or hoe. This notion, like the common law, was so old, that "the memory of man extended not to the contrary;" but happily for us all, the revolution had broken the entail of opinions as well as of landed estates, and left us at liberty to think and act for ourselves. The natural consequence of this increased freedom was, the introduction of many new practices in the arts, as well as in government; and agriculture came in for some small share of these benefits. Among them, was the application of putrescent manures to the surface, and in a much less fermented state than had ever been tried before. But so dreadfully afraid were the first experimenters of the formidable laugh of that once numerous family, "The Goodenoughs," that they made their trials, as it were, by stealth; and consequently, the results remained, for a long time, unknown, except to a few. I happened to be among the number, and could not long resist the evidence of my senses, although I must confess, that at first, it seemed to me a sort of sacrilege, even to doubt, and still more to act, in direct opposition to an opinion which, for aught I know, had descended from Triptolemus himself. By degrees, however, my courage waxed stronger and stronger every year, until I felt myself brave enough to commence the following experiment, which several old farmers in whose veracity I perfectly confided, had assured me they had often tried, and always with the same result, as that which I am about to report in my own case.

I began penning my cattle late in the spring, and continued it until frost, in pens of the same size, moved at regular intervals of time, and containing the same number of cattle during the whole period. These pens were alternately ploughed, and left unploughed, until the following spring, when all were planted in corn, immediately followed by wheat. The superiority of both crops on all the pens which had remained unploughed for so many months, after the cattle had manured them, was just as distinctly marked as if the dividing fences had continued standing: it was too plain to admit even of the slightest doubt. A near neighbor, a young farmer, had made the same experiment, on a somewhat different soil, the year before, but with results precisely the same. Similar trials I myself have made and seen made by others with dry straw, alternately ploughed in as soon as spread, and left on the surface until the next spring. In every case the last method proved best, as far as the following crop would prove it. The same experiment has been made by myself and others of my acquaintance, with manure from the horse-stables and winter-farm pens, consisting of much unrotted corn of fall; and without a solitary exception, either seen by me, or heard of, the surface application, after the corn was planted, produced most manifestly, the best crop. Upon these numerous, concurrent, and undeniable facts my opinion has been founded, that it is best to apply manures on the surface of land; and "I guess," (as brother Jonathan would say,) that it is not likely to change, unless indeed, I should hear a still greater number, equally well authenticated, on the opposite side; although I must say, that up to the present time, I have not heard a solitary one. True it is, that I have read

many ingenious, fine spun arguments in opposition to the opinion which I hold in common with numerous other agriculturists, but no proofs whatever have accompanied them, and therefore I must remain an infidel, until they are sustained and corroborated, by such facts, as should always be deemed indispensable to establish any practice whatever, in any of the various branches of husbandry. To collect these facts is a slow, and most tedious process, not very flattering to that pride of opinion which delights in speculative theories of our own elucidation, and sickens at the mere thought of the labor necessary to make, to watch, and to record accurate experiments in agriculture. In no other way, I think, can we account for those differences of opinion as to matters of practice, which are often found among our brethren, where all the facts are on one side. But to refuse to believe in that which we cannot explain, unless in some way that tickles our own vanity, gave rise to the sect of sceptic philosophers, and it is to be feared, will keep up the breed as long as the world stands. Let me not be here misunderstood. Far be it from me to object to theory and speculation, provided the sole object in concocting and maintaining them, be to arrive at truth. As this should be the aim of all, I am in favor of the utmost latitude of discussion in the honest pursuit of it. But I do, and will forever protest against that practice which is far too common amongst us, of regarding plausible and apparently scientific conjectures, so much more than the actual results of experiments fairly and accurately made, as not unfrequently to indulge our fancies with the former, even in direct opposition to the latter. Take, for example, the two conflicting creeds as to the best mode of applying manures, and test them by the uniformly concurring results of the several experiments which I have stated. All these results undeniably prove, that the surface application was best; although the kinds of manure differed considerably. And what have we in opposition, any facts whatever? Not one; and only the conjecture, that the evaporation from surface spread manure must carry off the greater and best portion of the food of plants therein contained. But that such evaporation cannot thus act, seems to me to be unquestionably proved by every fact I have mentioned: for, if it did, then the land of summer cow-pens ploughed up as soon as removed, would, in every case, have produced better crops, than that of the unploughed, instead of doing it in none. Similar results too must have followed in the other cases I have stated, although I have never seen nor heard of their doing it in any. The effects however, which *really have taken place*, (facts though they undeniably are,) happen to contradict, as plainly as we see the nose on a man's face, certain preconceived fictions, or ingenious theories, if you please to call them so—quoad manures—in the propagation of which much paper and ink has already been consumed, much head-work is still employed; and what is to be done? Shall all this labor, all the ponderous volumes elaborated by it, all the cogitations in support of those theories, which are now taking the rounds in our agricultural papers—shall all be discarded as things serving only to show how much fonder men are of their own speculations, than of facts, the occurrence of which brings them no credit for remarkable talents? Or, shall we still cling to these theories, maugre the facts, merely because we have already shed so much ink, and spent so much time in laborious efforts to sustain them? I can answer only for myself by saying, that I will ever abide by facts in preference even to my own opinion, whenever they conflict with each other. But in regard to the subject now under consideration, I believe there is a perfect accordance between them. Your subscriber however, may possibly think that I have "jumped too speedily to my conclusions;" I will therefore, respectfully offer to him such explanation of the operation of surface spread manures, as has been satisfactory, at least to myself. Should it prove so to him, I shall have gained my object in complying with his request.

My belief, founded on the facts already stated, is, that all the fertilizing substances of manures are soluble in water, and will remain uninjured themselves, and useless to plants until the solution begins, whether they be deposited on or under the earth's surface. I also believe, that this solution is caused by every fall of rain, and is immediately absorbed by the subjacent soil, which absorption results from two causes; first, the principle of gravity, and secondly, the stronger attraction of the earth than of the atmosphere, for every substance in solution which constitutes the food of plants. Moreover, that the earth never parts with this food, when thus absorbed, to any thing but the plants themselves; for it is their peculiar aliment, and not that of the atmosphere, whose existence, for ought we know to the contrary, is entirely independent of it, although its agency seems essential to the health and vigour of all plants. If this were not the fact; if, (for example,) the earth did give the best and greatest portion of this food to the atmosphere; or, if it escaped from surface spread manure, before gravity and attraction could impart it to the earth, then the evaporation which is supposed to be the medium of conveyance, and which is known to be constantly going on from the soil, would, in process of time, certainly render it barren, even without any cultivation whatever. Yet neither total nor partial barrenness is ever known to be produced by any other cause, than incessant culture without manure. That evaporation does take off something from manure while in a moist state, is proved by the offensive smell which constantly exhales from it until it is entirely dry. This smell is excited by a gas which is said by some, to con-

tain the most valuable portion of the food of plants. But admit the fact, where is the proof this portion being lost? I say there is none. On the contrary, we have what I think a conclusive reason for believing, that this food is immediately given by the atmosphere to the tops of plants, as more suitable to them than to their roots. My reason for this belief is, the result of the following experiment which I have known to be repeated several times. All the bark was taken off from around the body of certain young trees, in a ring about three inches wide, for the purpose, in the first case which I saw, of ascertaining whether this process would not kill the tree. But to the surprise of us all, not more than a year or two elapsed, before that part of the body above the ring became obviously larger than the part below, and this difference in size increased every year afterwards, as I had frequent opportunities of noticing.

Another reason why I believe, that manures act better, if spread on the surface of land, than when buried under it in the customary manner, is, that in the first case, the rain water carries the dissolved substances no deeper than the roots of most of our cultivated plants always grow, unless they are forced out of their natural course; and these substances remain fast held by the earth's chemical affinity, until the stronger attraction of the spongioles of the roots begins to act upon them. But in the second case, that is, where manure is ploughed under as soon as spread, all the food of plants contained therein, being placed at once quite as deep as their spongioles naturally grow, and this too, before the rains begin to dissolve it, the subsequent solutions caused thereby, necessarily sink still deeper, and generally beyond the reach of the plants for whose nourishment they are designed. In no other way can I account for the long noticed and invariable superiority of crops produced by surface spread manure, to those produced by that which was ploughed in. To me there appears to be but this alternative, either to deny the facts already stated, which I myself have often witnessed, or to explain them, (if we must theorise on the subject at all,) in some such way as the one which I have just offered to your subscriber, and to such others of our brethren as may choose to examine it. Permit me further to add, that on this subject nature herself seems to offer us a useful lesson, if we were not too wise in our own conceits to be taught by such an instructor; for I know not a single exception to her practice of depositing on the earth's surface, all the putrescent substances of every nature and kind, which appear designed to preserve her fecundity.

In close connexion with this subject, there is one other matter on which I will take the liberty to express an opinion, although your subscriber has not asked for it. This is, in regard to the best state in which manure can be applied. So far as my own experience enables me to judge, an experience confirmed by that of many others in whose practical knowledge of the subject I have great confidence, I believe that the fresher it is, the better; for in such state, so much less will suffice, than in any more advanced stage of putrefaction, that time, labor, and value are all saved in the application: while none of the alleged "burning" ascribed to the manures being "too hot," ever occurs, if the quantity used be lessened in proportion to its freshness. This injury to plants, if I mistake not, is always caused by *excess* in the quantity, and not by the *quality* of the manure we apply to them, although the two things are often confounded, and thereby contribute to the perpetuation of error in regard to the nature and operation of all fertilizing substances. There is not, I believe, an agriculturist of any experience in our country, who has not had frequent opportunities of witnessing numerous facts to prove the correctness of these opinions. But, as I before remarked, we are all vastly fonder of our own fancies, than of facts in opposition to them; and consequently pass all such without notice, or, when too strong and obtrusive to be entirely disregarded, we spare no labor nor pains to force them, as far as we possibly can to subvert some previously conceived notion which our silly pride forbids us to abandon. This obstacle to the progress of all improvement, but especially in husbandry, is one of the most pernicious of our besetting sins; and but for this, it seems to me impossible that any controversy should still exist in regard to the best manner and state in which to apply manures to land. Two or three years, at most, would have been amply sufficient to establish the most beneficial practice, if all those whose special interest it is to ascertain it, would have diligently and impartially resorted to comparative experiments, accurately and assiduously made for the purpose, rather than to speculating and theorizing about it. But it can never be too late to make such experiments. Let me therefore, most earnestly, but respectfully recommend to your subscriber, who has done me the honor to ask my opinion, as well as to all others who may still have doubts on the subject, forthwith to commence making trials of the different methods of applying manures, and also of the different states in which it is applied. The opinions of experienced men are certainly well worth consulting, in regard to all matters connected with their respective trades, professions or callings; but we should never implicitly take them as guides for our own practice, any longer than until we can have leisure to test their correctness by actual experiments. When a number of these concur in producing the same uniform result, it is a matter of very little comparative importance, how others may endeavor to account for the fact, as the fact itself is the all important thing, especially in every practical art. But this war between

speculation and practice, between nature's own doings, and our fanciful ways of accounting for them, is destined, I fear, never to cease, so long as such a thing remains in the world, as pride of opinion. Let a man once commit himself so far, either in speaking or writing, as publicly to deliver what he considers an argument in support of his "ipse dixit," and there are a hundred chances to one that he persists in it to the day of his death.

In thus complying with your subscriber's request, I may perhaps have said more than either he or you expected or wished. If I have done so, I must rely for my excuse, on the proverbial garrulity of old age, unless your own kind feelings will suggest a better. I remain, dear sir, yours very respectfully,
JAMES M. GARNETT.

On Road Making.

South Lee, Mass. June, 1839.

JUDGE BUEL—Sir—The improvements in the science of road laying and building, in the March number of the 6th volume of the Cultivator, I highly approve of, so far as it is carried; and if no better system is proposed you will make such use as you please of the following suggestion: Let the road in its construction imitate or copy the rail-road as near as practicable; that is, keep the wheels level, and go with an inclined plane from one bar or breakwater to another, and make the bars as seldom as the safe keeping of the road will admit; but when necessary, make them efficient, with permanent materials with from two to three feet rise, according to the levelness or pitch of the ground, always making provision for both wheels to rise simultaneously, never allowing the travel to sink from the summit of the break, below the natural descent of the land; and also never allow an oblique bar to be made on the travel, for that throws the load upon one wheel or side, which racks or strains the vehicle, jeopard a high load, strains the animals, discomposes the passengers and deranges the whole concern; whereas, when a road is built as above, should accidents happen from restive animals or other causes, you are far less exposed to upsetting than when oblique breaks are in the formation of the road. Having realized the folly of the general practice in road building, and witnessed the vast amount of funds wasted by thoughtless road commissioners, or surveyors of our highways; and where the experiment has been made, I have seen it conclusively demonstrated, that from fifty to seventy-five per cent have been wholly thrown away by unscientific overseers; therefore I approve of large districts being apportioned to men of liberal minds, in building as well as in locating our common highways, as a means to avoid the evil consequences which often arise from a limited selfishness, which operates to the mutual disadvantage of the taxpayer and the traveller. Yours, &c.
A TALENTED SUBSCRIBER.

Heavy Sheep.

Spout-Run, June 14, 1839.

Hon. J. BUEL—Dear Sir—Since your readers are chiefly agriculturists, the following notice may be somewhat interesting in the Cultivator.

When the sheep at Spout-Run were sheared, on the 18th of May, a yearling ram and five of the ewes were weighed, as follows: ram 174 lbs. his fleece 5 lbs; 1st ewe, 196 lbs. fleece 5 lbs; 2d ewe, 174 lbs; 3d ewe, 190 lbs. fleece 7 lbs; 4th ewe, 164 lbs. fleece 5 lbs; 5th ewe, 164 lbs. her fleece 5 lbs; only two are considered at all above the average weight of the flock. The wool was clean washed, otherwise the fleeces would have weighed from 7½ to 11 lbs. and the ewes were all suckling lambs. These two considerations taken in view, it is believed to be the greatest exhibit of weight of carcass and fleece made in the United States by a flock of ewes. These sheep have been raised and improved by my friend, Mr. Ths. H. Burwell, of Spout Run, Clark county, Va.—Respectfully yours, &c.
A SUBSCRIBER.

The Farmer should Read and Think.

Schenectady, May, 1839.

J. BUEL—Dear Sir—We learn from the most skilful anatomists, that the brain of all vertebral animals is of rapid growth and increase, from conception to birth, when the brain of all such animals in the scale below man, is complete and full as at maturity of age. Some evidence of this may be observed from their activity and facility of helping themselves to food, &c. With men it is otherwise, which may also be observed from his inability to do any thing for himself in infancy.

The brain in man, is also of the same rapid growth from conception, but is not complete at birth. It continues the same rapid increase in volume and improvement, till the seventh year of age, when it is also complete, and is fully developed, as at mature age, with little increase to seventy years. All the increase and volume of the brain after birth in man, is wholly wanting in all other animals. This fact shows plainly the beneficence of the great Creator, in bestowing on man greater gifts than on any of his creatures.

When the brain has become complete in man, at his seventh year, it is like a large blank book full of leaves, ready to receive impressions. He now becomes a moral being, with capacity for intellectual improvement, as well as physical. He is now to learn his relations to his God, as the great and beneficent giver; to himself, as the immediate field of operation; and to his neighbor, as the comfortable and convenient fellow associate, in the mutual uses and improvements of the immense good gifts of the great Creator in the relations here, and of the infinitely greater gifts and provisions for a better

existence hereafter, beyond our vision, but of full and perfect faith.

From all these blessings, it must be evident to every rational and reflecting man, that all these superior gifts were intended to be improved and accounted for, like the talents bestowed by the "man travelling into a far country, who delivered to his servants his goods. To one he gave five talents, to another two, and to another one—and who, after a long time, returned and reckoned with them."—*Mathew xxvi. 14, &c.*

Can man, on whom such great bounties have been conferred, fulfil all his duties, by folding his arms in idleness? If he be rich in the good gifts of Providence—in wealth, health and intellect, shall he say that he has enough, as an excuse for indolence and ease? We read, "to whom much is given, of him much will be required;" and it will be with the highest justice, too.

But, farmers in general, have chosen to degrade their own occupation, by calling it a life of drudgery and ignorance—thinking it enough if they know the horse from the ox, can plough, sow their seed, swing the axe, the scythe and the cradle in harvest. They should recollect, that the first and most honorable employment appointed by God to man, was to dress the flower-garden, and till the ground. And shall man despise this noble employment, under such authority and profit, and call it degrading? He does so, and it is because he is idle, and ignorant of the great gifts, of almost infinite uses of application in science, in the performance of the various duties of the good husbandman.

To be a good and profitable farmer, requires the man to be as scientific, as to be the good and skilful physician. He is to learn and understand that all vegetables must feed, as well as all animals do. He should learn how they feed, and on what aliment they thrive most rapidly.

When the farmer has acquired sufficient knowledge in botany and chemistry for profit, to guide him in his husbandry, he will know that all living substances, that is, all organic bodies possessing the gift of life, whether of the animal or vegetable kingdom, must derive their sustenance from organized matter, that is, from animal or vegetable bodies in a state of decomposition after death. The earth is a scene and foot-path for locomotives, in seeking their food and pleasure. It is the foot-stool and support of the vegetable tribe. No animals or vegetables can derive nutriment from other living organized bodies. The stomach of no living animal has any digestive power over any living animal or vegetable in it. But, so soon as life is extinct, all animal and vegetable matters, become food, to digest and nourish all living organized bodies, both animal and vegetable.

Although the human stomach has no digestive power on living matter, yet its own gastric secretions will digest even its own, the same stomach that secretes it, so soon as the subject is dead. The living principle protects all living bodies from decomposition and digestion. But the moment the living principle has departed and become extinct, it is subject to both decomposition and digestion. So the vegetable feeds on decomposed animal and vegetable matter, as does the animal kingdom.

All the nourishment of animals and vegetables is derived from organized matter, that is, from matter once possessing the living principle, and that has suffered death, or the cessation of the living principle. The air, water, lime, alkali, caloric, silica, phosphorus, carbon, light, oxygen, hydrogen, nitric and electric fluids, and the thousand other fluids and gases yet beyond the knowledge of man, all lending their aid in promoting animal and vegetable life and growth, the earth being the vehicle and support.

What a wide field is here opened to the vigilant and intelligent farmer! And will the husbandman continue to waste his leisure hours of morn and eve, and rainy days in idle talk and sleep, when his profession suffers so great loss from his ignorance?

If the farmer would begin to read, he would soon acquire a taste for reading more; and his thirst for science would urge him to notice that most valuable injunction, "gather up the crumbs that nothing be lost." How many crumbs of time are lost to the farmer, which, if employed in reading, would make him intelligent and honorable among men, and skilful in his occupation. Can all this useful knowledge of the growth of vegetables be understood by the self-sufficient, but ignorant farmer?

To become a scientific and successful husbandman, requires more knowledge in natural science, than to be the most improved mechanic. Although the skilful mechanic must learn the principles and rules of his operation from the laws of nature, by reading, and the application of industry, yet his task is more easy, because more visible and tangible.

The husbandman, although he cannot perfectly understand the process by which his vegetables increase in growth, yet he sees that they have grown and produced a rich load, and he reaps the most bountiful harvest from his improved and scientific cultivation. The numerous reports of scientific farmers, recorded in the *Cultivator*, prove this.

The principles of husbandry must be the same every where; but different soils and different climates require a diversity of treatment and culture. All these man must learn by science and experiment; for that law, that he "shall eat his bread by the sweat of his brow," has not been repealed. Nor will Divine Wisdom ever repeal that law, because it is not for man's good to be idle. If he were not obliged to labor, he would soon perish in filth and sloth, and not learn gratitude to God, who gives him all things richly, in goodness and mercy.

I must defer saying more till another opportunity, as

this will occupy too large a space in your useful *Cultivator*, to the exclusion of more interesting matter. Respectfully,
DAVID TOMLINSON.

Whittington New White Wheat.

Albany, July 13th, 1839.

Mr. J. BUEL—Dear Sir—In the month of March last, I received from my brother Geo. C. Thorburn, two bushels Whittington New White Spring Wheat; from the high recommendation the wheat received at the Liverpool Agricultural Society of England, and its fine appearance, (a large white plump grain,) I was induced to recommend it to our farmers, and would not sell over two to four quarts to any one person, (except in a few instances,) in order to give this wheat a wide circulation through our country. I have reason to fear, it is a winter wheat. From the circulars sent from England with the wheat, I sold it in good faith as a spring grain; I never gave it any other recommendation than its appearance, and the testimony of the grain in England. In the April or May number of the *Cultivator* you made an extract of the qualities of the wheat, from an English work, and from your notice of it, I received orders from all parts of our country, for a few quarts of the wheat. No one regrets the disappointment more than myself, and I here disclaim any intention of practising a deception on the public, and am willing to render every satisfaction in my power. Respectfully yours,
W. THORBURN.

BY THE CONDUCTOR.

In the December number of the *London Farmer's Magazine*, we saw advertised, "the Whittington New White Wheat, for winter or spring sowing, which obtained a medal at the Liverpool Agricultural Meeting in 1836." We received a sample of the most handsome wheat we ever saw, which purported to be the Whittington; in consequence of which, and of its being represented to be a spring wheat, we sowed one bushel, early in April. But it evidently is a winter grain; as only an occasional plant shows an indication of producing seed at this time, July 15. We are satisfied that the Messrs. Thorburns, as well as ourselves, have been imposed upon, by the foreign advertisements and circular which accompanied the wheat from London. We purpose to mow ours, in the hope of getting a crop from it in 1840.

Observations on Magnesia as a Manure.

Considerable prejudice exists, I believe, against the use of magnesia limestone as a manure. This originated in the experiments of Mr. Tennant, who, on examining a lime long known to the farmers at Doncaster, in England, as injurious to their crops, found that it contained magnesia. In order to certify the truth of his examination, he mixed some calcined magnesia with soil, on which he sowed different seeds; and the result was, that they either died or vegetated in a very imperfect manner, and the plants were never healthy.

I have taken this statement from Sir Humphrey Davy's *Agricultural Chemistry*; and you will find that while he concedes the correctness of Mr. Tennant's opinion, he at the same time gives sufficient reasons for believing that magnesia limestone, or carbonate of magnesia, may prove fertile. One of the most fertile districts of Cornwall, the Lizard, is a district in which the soil contains mild magnesian earth.

Still, the prevailing opinion down to the present day has been unfavorable to magnesia, and this in the face of the well known fact, that most good soils contain a suitable proportion of it. It has lately been announced by Professor Giobert, that in the vicinity of Castellmonte, (in Italy, I presume,) this earth is abundant in the soil which is most fruitful. And he adds, that there are numerous localities in Piedmont, of a similar description. He hence infers, that native carbonated magnesia is not injurious to vegetation; and again, that in consequence of the solubility of magnesia, in an excess of carbonic acid, this substance may exercise a fertilizing power similar to carbonate of lime.

If these facts be correct, it is reasonable to suppose, that magnesia is taken up by plants, and an Italian chemist named Abbene, has actually detected it in the ashes of such as had grown in magnesian soils.

The practical deduction from these observations is the following:—If the magnesia in the soil, or the magnesian lime-stone, after being burnt, appears too caustic, add compost sufficient to furnish the needed carbonic acid. And the sterility of magnesian soil is to be attributed to its cohesion and want of proper mixture of other ingredients, rather than to the peculiar earth.

These observations are condensed from a French periodical of January, 1839, in the hope, that they may be found useful to some of your readers. T. R. B.

Extirpation of Garlic.

Montcalm, Va. June 21st, 1839.

J. BUEL, Esq.—Sir—The extirpation of wild garlic has been regarded rather as an object to be desired by the agriculturist, than one to be successfully accomplished. An experiment, made by myself, not with that view, however, will at least point out one mode by which this unpleasant plant may be destroyed. In one-third of a field of about twenty acres, it had become very thickly set. In the summer of 1836, the wheat grown on this part of the field was so filled with it, that I was induced to keep it separate from the rest, to prevent its injuring the sale of the whole. The next spring, 1837, I planted the field in corn, and in the fall, having a large number of hogs to fatten, and no time or labor to spare to gather corn for them, I turned the whole of them into this field. (This is sometimes done in this part of Virginia.) They remained here till they had nearly consumed all the corn, when they were removed

into small pens and fed. I then turned all my store hogs into the field, to finish what was left, where they remained till late in December. In the mean time, as their food decreased, I commenced feeding them once, and afterwards twice a day, during the winter. They were permitted to have access to the field for half the winter. My feeder, in December, told me that they were eating the garlic. In the spring, I sowed the field in oats and clover. The oats were good; the clover was destroyed by the burning drought of last summer; thus leaving the field entirely naked. I then determined, (last fall,) although the fourth crop in succession, to sow it in wheat, which I did, and this spring in clover and timothy, a full quantity of each. Now, sir, I have, in the last fortnight, repeatedly and carefully searched for the garlic, and found two stalks only, where thousands stood before. The garlic is now in full bearing, and may be easily detected.

It is manifest that this method of destroying this pest will not generally answer. But the idea may be improved on. If a farmer have but one field of corn, and garlic prevails in it, he may gather nearly the whole of it, and instead of seeding it, as is the usual practice, let him turn in all his hogs, that are to be kept over to the next year, and they will soon get hold of the roots, &c. He will then put in a spring crop with grass seed. So well satisfied am I with the result, in this case, that I shall pursue the same plan in respect to two other fields, in which there is a good deal of garlic. It will occur to you, that the ground being light and mellow, from the recent cultivation of the corn crops, the hogs have no difficulty in finding the bulbs, which they will not attempt in a field well set in grass or stiffened with a sod, although abounding in garlic, and this for two reasons: they have a plenty to eat, and with less labor. Yours, &c.
JAS. McILHANY.

EXTRACTS.

Diseases of Sheep.

The surgeon who operates upon the human system, is presumed to know, and ought to know, something of anatomy, in order to enable him to discover the seat and cause of disease, that he may more readily apply the needful remedy. The structure of the brute is nearly as complicated as that of man; and the same degree of professional skill is often as necessary in managing rightly the diseases of the one as the other. There are more quacks in the veterinary art, than in the profession of surgery; and it therefore stands the intelligent breeder in hand, to qualify himself to become, in some measure, his own cattle doctor. To aid him in this useful study, we make the following extract. A vast many sheep are lost by diseases of the foot. The nature and seat of these diseases, are pointed out with such plainness, and the modes of prevention and the means of cure are so briefly described, that any intelligent sheep master may make the whole subject familiar to his mind, and be able to practise with confidence and success upon his flock.—*Conductor.*

[From the Library of Useful Knowledge, Farmers' Series.]

DISEASES OF THE FOOT.

The dreadful and too frequent disease termed foot-rot belongs to the present chapter. There are two varieties of it, or rather there is a disease of the foot, properly speaking, and of the fetlock and pastern-joints.

DISEASE OF THE PASTERNA, OR BIFLEX CANAL, AND FETLOCK-JOINTS.

The fetlock of the sheep, like that of the ox, is a very complicated joint. There are two pastern-bones in each leg, articulating with the canon or shank-bone. The leg bone itself is double in the fœtus, but the cartilaginous substance between the two portions of it is afterwards absorbed, and they become one large bone. The lower bones, however, continue separate, and each division has its own ligaments and tendons, and is covered by its own integument. The whole of the fetlock-joint is weakened by this division, and each of the pasterns below is also materially weakened.

At the portion of the skin immediately over the point of bifurcation of the pasterns, there is found in the sheep and in the goat a small orifice called the biflex canal, because it is common to both of the pasterns. It is formed by a fold of the skin, and immediately within the skin it bifurcates, and a canal or tube runs down on each side over the inner face of the pastern, reaching to the coronary ligament at the commencement of the hoof. It contains a great number of follicular sebaceous glands, which secrete a yellow strong-smelling mucous fluid. At the bottom, this canal curves upon itself and terminates in a blind pouch or cul de sac. The superior orifice, always open, is marked by a little tuft of hairs growing from it, and often agglutinated together by the perspiration of the part, or by the adhesive discharge from the canal. The function or use of this singular pouch has never been satisfactorily explained. It may answer two purposes—it may contribute to the suppleness, or freedom of motion of the pasterns, and enable them to adapt themselves to the irregularities of the ground and share the weight of the animal equally between them, or it may secrete a bland and evaporating fluid, which will be in contact with the pastern and joints of the foot in cases of sprain and injury.

Whatever may be the function of the canal it is sometimes the seat of considerable disease, which has been confounded with foot-rot, and which "in common parlance," is here described as a variety of it.

An accumulation of this sebaceous fluid in the biflex, interdigital canal, or the introduction of foreign bodies into it, such as dust, dirt, or gravel, may cause a considerable degree of local inflammation, and which may be communicated to the neighboring parts. Diseases of this canal are of most frequent occurrence when the flock is turned on hard, dry, or sandy pastures. Heavy and fat animals are, as might naturally be supposed, most subject to its attacks; sometimes in every season of the year, but oftener when the weather is hot and dry. The great number of sheep that have been attacked by it at the same time, and especially as it has been so generally confounded with foot-rot, have excited the suspicion that it is infectious. There does not, however, appear to be any ground for this supposition.

The inflammation is first discovered by the lameness of the sheep, which probably leads to an examination of him, when the part is found to be hot and tender, with some enlargement. If the animal is neglected, the swelling will, probably in a few days, reach the pastern and the coronet below, and the fetlock and the leg-bone above, and to this will follow ulceration of some part of the biflex canal, which will speedily become a source of great annoyance and mischief. The pus penetrating inferiorly will find its way under the coronet, and produce quittor, or even loss of the hoof on the affected side; sometimes ulcers will appear about the fetlock.

Generally speaking, the disease attacks only one foot, and then the sheep goes about on three legs. If both fore legs fail, he must be content to crawl about on his knees. The biflex canal is found in all four feet, but it is comparatively seldom that the hind feet are diseased. The poor animals evidently suffer a great deal, for they scarcely feed—rumination is suspended—fever is established, and, in some bad cases, the sheep pines away and dies.

Before the disease has gone so far as this, the proprietor, acting humanely and wisely, should send the animal to the butcher. The note at p. 524 has already explained the once common opinion respecting this complaint—namely, that it was caused by a worm that had eaten its way into the leg, the hole through which it had entered being still visible. According to this doctrine, the only means of cure lie in the removal or destruction of the worm.

The treatment in the early stage of this disease consists in the extraction of any foreign bodies that may have insinuated themselves into this canal, and in fomenting the part and the whole of the foot. These lotions should be followed by a poultice enveloping the whole foot and the greater part of the leg—an emollient poultice at first, and until the discharge of purulent, and perhaps fetid, matter is staid, and then an astringent one. A decoction of oak bark will form a good liquid for the poultice. In very bad cases, local bleedings (scarifications) round the coronet are practised with considerable advantage. Any tendency to gangrene is combated by a solution of the chloride of lime.

A cure, however, will not often be accomplished by these means, except where there is no actual disorganization of the biflex canal. If that should have taken place it will be necessary to lay it open or remove it, and when it is dissected out, thickened by inflammation and with its singular natural tortuous form, the older shepherds will readily be forgiven for endowing it with life and the power of producing almost irreparable mischief. The French strongly recommend the removal of this singular reservoir, but that will not always be necessary. The orifice into the canal may be somewhat enlarged, and a probe-pointed bistoury thrust into that division of it which is most or alone affected, or a small seton needle may be introduced, and brought out just above the coronet. Either of these operations, and especially the latter, will usually succeed. The wound, if the bistoury has been used extensively, should be daily dressed with digestive ointment for a while, and which should be afterwards changed for the tincture of myrrh; the old butyr of antimony not being forgotten if the case seems to require it.

FOOT-ROT.

Foot-rot is a disease always at first, and usually throughout its whole course, confined to the foot. The first indication of foot-rot is a certain degree of lameness in the animal. If he is caught and examined, the foot will be found hot and tender, the horn softer than usual, and there will be enlargement about the coronet, and a slight separation of the hoof from it, with portions of the horn worn away, and ulcers formed below, and a discharge of thin fetid matter. The ulcers, if neglected, continue to increase; they throw out fungous granulations, they separate the hoof more and more from the parts beneath, until at length it drops off.

All this is the consequence of soft and marshy pasture. The mountain or the down sheep—the sheep in whose walk there is no poachy ground, if he is not actually exposed to infection by means of the virus, knows nothing at all about it; it is in the yielding soil of the low country that all the mischief is done.

In attempting to explain this, the author cannot do better than to have recourse to much of the beautifully graphic description of the healthy foot of the sheep and the changes which it undergoes, as given by his talented and excellent friend, Professor Dick, of Edinburgh.

The foot presents a structure and arrangement of parts well adapted to the natural habits of the animal. It is divided into two digits or toes, which are shod with

a hoof composed of different parts, similar in many respects to the hoof of the horse. Each hoof is principally composed of the crust, or wall, and the sole. The crust extending along the outside of the foot, round the toe, and turning inwards, is continued about half-way back between each toe on the inside. The sole fills the space on the inferior surface of the hoof between these parts of the crust, and being continued backwards becomes softer as it proceeds, assuming somewhat the structure of the substance of the frog in the foot of the horse, and performing, at the same time, analogous functions. The whole hoof, too, is secreted from the vascular tissue underneath.

Now this diversity of structure is for particular purposes. The crust, like that in the hoof of the horse, being harder and tougher than the sole, keeps up a sharp edge on the outer margin, and is mainly intended to resist the wear-and-tear to which the foot of the animal is exposed. The soft pasturage on which the sheep is occasionally put, presents little, if any, of that rough friction to which the feet of the animal is naturally intended to be exposed. The crust, therefore, grows unrestrained until it either laps over the sole, like the loose sole of an old shoe, and serves to retain and accumulate earth and filth, or is broken off in detached parts; in some cases exposing the quick, or opening new pores, into which particles of earth or sand force their way until, reaching the quick, an inflammation is set up, which, in its progress, alters or destroys the whole foot.

The finest and richest old pastures and lawns are particularly liable to give this disease, and so are soft, marshy, and luxuriant meadows. It exists to a greater or less extent in every situation that has a tendency to increase the growth of the hoofs without wearing them away.

Sheep that are brought from an upland range of pasturage are more particularly subject to it. This is very easily accounted for. By means of the exercise which the animal was compelled to take on account of the scantier production of the upland pasture, and also in consequence of the greater hardness of the ground, the hoof was worn down as fast as it grew, but on its new and moist habitation the hoofs not only continued to grow, but the rapidity of that growth was much increased, while the salutary friction which kept the extension of the foot within bounds was altogether removed. When the nails of the fingers or toes of the human being exceed their proper length they give him so much uneasiness as to induce him to pare them, or if he neglects this operation they break. He can pare them after they have broken, and the inconvenience soon ceases, and the wound heals. When, however, the hoof of the sheep exceeds its natural length and thickness, that animal has no power to pare them down, but there long continues a wound, irritated, and induced to spread, by the exposure of its surface, and the introduction of foreign and annoying matters into it.

The different parts of the hoof, likewise, deprived of their natural wear, grow out of their proper proportions. The crust, especially, grows too long; and the overgrown parts either break off in irregular rents, or by overshooting the sole allow small particles of sand and dirt to enter into the pores of the hoof. These particles soon reach the quick, and set up the inflammation already described, and followed by all its destructive effects.

There is another circumstance which tends to produce disease in an overgrown hoof. The length to which the crust grows, changes completely the proper bearing of the foot, for being extended forward, it takes the whole weight of the superincumbent parts. By the continual pressure on this lengthened part, inflammation cannot fail of being set up. The progress of the disease is not equally rapid in every instance; sometimes it goes to a certain extent, and the foot to a considerable degree recovers. All the feet may not be equally affected; the fore ones, however, are always the most liable to disease, on account of the additional weight which they carry. Sometimes there is only one foot affected, and that is sure to be a fore one—sometimes only one hoof of one foot, and occasionally one speedily heals while the other continues to get worse and worse.

In the first stage of the disease there is often found nothing but a little overshooting of the edge of the crust, and which is bent in upon the sole, or the edge of the crust is forced asunder from the sole and a wedge of earth is introduced which presses upon the sensible substance beneath; but at other times the edge of the crust continues to grow until it envelops the whole of the sole. It is seldom that there is inflammation enough excited to throw off the whole hoof at once; but it separates at different parts, and at each part of separation there is new horn formed; this although soft and unhealthy, and not capable of sustaining pressure, covers, and to a certain degree, protects the sensible parts beneath. By degrees, from increased and long-continued irritation, the parts are no longer able to secrete even this weak horn, but granulations of proud flesh sprout out, and then the work of destruction proceeds in good earnest.

This is the usual progress of the disease, but at other times inflammation seems to be set up at once over the whole of that division of the foot, and there is considerable swelling about the coronet, and matter is formed and breaks out, and sinuses run in various directions, and the whole of the hoof is gradually detached. The upper part of the space between the hoofs becomes inflamed and swelled, the whole of the inner surface of the pastern is sore and raw; ulceration commences—it eats deeply—it spreads on every side—it spreads up-

wards—and the toes are separated from each other almost to the opening of the biflex canal. That canal becomes inflamed—proper inflammation of it is added to that of the sensible parts beneath the hoof—the mucous follicles which it contains, and of which mention has been made, pour out a large quantity of sebaceous discharge, which flows over the fore part of the foot and between the hoofs, and assists in the accumulation of filth by its adhesiveness. In some cases, as has appeared when the diseased state of this canal was examined, the malady commences here. Inflammation of the biflex canal produces much enlargement of the neighboring parts, and the motions of the foot are interfered with, and inflammation and disorganization spread on every side. As these increase, and also the discharge by which they are accompanied, dirt and gravel, and pieces of grass adhere to the ulcerated surface, and insinuate themselves between the pasterns, there soon become one uniform mass of disease.

The ulceration of foot-rot will not long exist without the addition of annoyance of the fly. Maggots will multiply on every part of the surface and burrow in all directions. To this, as may be readily supposed, will be added a great deal of constitutional disturbance. A degree of inflammatory fever is produced. The animal for a while shifts about upon its knees, attended by some faithful companion that abandons it not in its utmost need; but at length the powers of nature fail, and it dies from irritation and want.

This is a dreadful account, and yet, after all, the disease is more manageable than could well be imagined, if it is attacked in its earliest stage and treated with proper decision. It will seldom be necessary, or indeed proper, to adopt any means for the purpose of abating inflammation before the radical mode of cure is adopted. Poultices and emollients will only weaken the parts, and cause the fungous granulations to increase with tenfold rapidity.

The foot must be carefully examined, and every portion of loose and detached horn pared off, even though the greater part, or almost the whole of the hoof may be taken away. The horn once separated from the parts beneath will never again unite with them, but become a foreign body, and a source of pain, inflammation, and fungous sproutings. This, then, is the first and fundamental thing—every portion of the horn that is in the slightest degree separated from the parts beneath must be cut away. A small, sharp, curved-pointed knife, or a small drawing knife, will be the best instrument to effect this.

If there are any fungous granulations they must be cut down with the knife or a pair of sharp curved scissors, unless they are exceedingly minute, and then the caustic about to be mentioned will destroy them. The whole foot must be thoroughly cleaned, although it may occupy no little time, and inflict considerable pain on the animal. The after expenditure of time, and the suffering of the patient, will be materially diminished by this decisive measure.

The foot should then be washed with a solution of chloride of lime, in the proportion of one pound of the powder to a gallon of water. This will remove the factor, and tendency to sloughing and mortification, which are the too frequent attendants on foot-rot. The muriate or butyr of antimony must then be resorted to, and by means of a small stick with a little tow tied round one of its extremities, applied to every denuded part: lightly where the surface has a healthy appearance, and more severely where fungous granulations have been cut off, or there are small granulations springing up.—There is no application comparable to this. It is effectual as a superficial caustic; and it so readily combines with the fluids belonging to the part to which it is applied, that it quickly becomes diluted, and comparatively powerless, and is incapable of producing any deep or corroding mischief. So far as these foot cases are concerned, it supersedes every other application. The change of colour in the part will accurately show to what portions it has been applied, and what effect has been produced.

If the foot has been in a manner stripped of its horn, and, especially, if a considerable portion of the sole has been removed, it may be expedient to wrap a little clean tow round the foot, and to bind it tightly down with tape, the sheep being removed to a straw-yard, or some enclosed place, or to a drier pasture. This last provision is absolutely necessary when the sheep is again turned out; for if the foot is exposed to the original cause of disease, the evil will return under an aggravated form.

The foot should be dressed every day; each new separation of horn removed; and every portion of fungous submitted to the action of the caustic, with a degree of severity proportioned to the necessity of the case. The new horn should likewise be examined. If it appears to be healthy and tolerably firm, nothing should be done to it; but if it is soft and spongy, the caustic must be lightly applied. The sooner the bandage can be removed, and the sheep turned into some upland or thoroughly dry pasture, the better will it be for the foot, and the health of the animal generally.

The worst cases of foot-rot will readily yield to this mode of treatment, provided the bone has not been exposed, and there are no sinuses running either into the joints or deep-seated parts of the foot, or of the pasterns above. All superficial mischief will be readily repaired, and more speedily than could have been thought possible; but there is always a considerable degree of uncertainty, when the horn being removed, the ulcerations are found to be deep, and certain sinuses or open-

ings betray the existence of greater mischief within the foot. The case will, at all events, occupy a considerable time, and give no little degree of trouble; and it will be for the owner to consider whether he had not better destroy the sheep if he is in tolerable condition, than to run the risk of his pining away, and ultimately sinking under long-continued and increasing suffering.

The sheep that has been attacked by foot-rot should not be suffered to rejoin his companions while there is the slightest discharge from any part of the foot. This goes on the supposition that the foot-rot may not only be produced by the causes that have been mentioned, but that the discharge from the sores and sinuses is of an infectious nature. Some valuable writers, and Professor Dick among the number, have denied the infectiousness of foot-rot. They find sufficient reason for the spreading of this disease through a whole flock, from all the animals having been exposed to the same exciting cause; the feet of all of them having been macerated by the soft and damp pasture on which they have trodden, and the internal part of the foot being thus denuded and injured.

There cannot be a doubt on which side the preponderance of evidence lies, and the question would not have been entered into at so great length were not the settlement of it so essentially connected with the interest of the sheep-breeder. It is produced in certain individuals of the flock, by the process of maceration and softness which the hoof undergoes on the moist surface of certain pastures; but once set up, an ichorous and venomous fluid is secreted, by which the disease is too surely and rapidly spread. "In all situations where it has obtained a footing," says Mr. W. Hogg, "we find it beginning in a particular place, and, if unopposed extending wherever there are sheep to be affected by it."

It has been said that the manner in which the contagion is conveyed has not been satisfactorily explained. There is no necessity, however, to have recourse to any epidemic influence, or to any constitutional affection produced by feeding on the grass on which the virus has been deposited. The account that has been given of the state of the foot, its degree of maceration, the opening of all its pores, the frequent laceration of the horn, and the absolute exposure of a greater or less portion of the sensitive substance of the foot, the frequent inflammation, and sometimes ulceration of the thin skin which covers the coronet,—all these circumstances afford means more than sufficient for the absorption of the virus and the production of the disease.

Some persons have imagined that foot-rot is propagated by means of animalcules which are bred in the virus of the part, and falling on the pasture, attack the feet of other sheep. They have gone so far as to describe this insect, and to give it a name—the *pulex penetrans*. The author of this work has often sought for it in vain; and the sources of contagion are numerous and satisfactory enough, without any gratuitous supposition of this kind.

The establishment of this cause of the disease leads to an evident and an effectual mode of prevention; the removal of every sheep that begins to halt, and before the secretion of the virus has commenced. It is bad policy to let the poor animals crawl about the pasture on their knees, day after day; and the sheep-owner will severely suffer for his folly. How long a pasture may be considered to remain tainted it is impossible to decide; but a heavy rain or sharp frost would probably wash the virus away, or destroy its power. The sheep that are removed should not be permitted to return until their feet are perfectly healed, and have been well washed.

The previous habits of the sheep would have a more decided influence in the production of foot-rot. Supposing different lots of sheep were taken from a dry upland pasture, and placed on a moist and richer soil; the consequence would be that the hoofs of all would be macerated and softened, and exposed to injury, but that injury would be proportionate to the pressure upon and the wear of the foot. That was a very interesting account which was given by Mr. Black, p. 532, of the progress of foot-rot among certain sheep of different kinds, that had been turned into one of the parks. The black-faced sheep were first affected, and to the greatest degree; next in degree was a cross between the black-faced and the Cheviot; then the Cheviot, and, last and least of all, the Leicester breed. "I was at a loss," says he "to account for this peculiar liability in the different breeds, while all were exposed to the same circumstances; but by carefully watching the flock, I found that the black-faced got up from their lairs the earliest in the mornings, and from their being accustomed to roam from the hill to the glen at the approach of daylight in search of their food, continued from habit to wander through the park before they began to feed. The other breeds possessed this disposition precisely in the order in which the disease appeared. Consonant with this is the common remark, that Southdown sheep, removed from their native downs to low and moist pasture, are peculiarly subject to foot-rot. A most useful conclusion will naturally be drawn hence, as to the kind of sheep that should be selected for different soils and pastures.

As the foot-rot proceeds from the distorted form of the hoof, and the irregularity of the pressure, more than from the simple wearing away of the softened horn, it might be useful, and especially on suspected ground, to pare the feet of all the sheep twice in the year—in October or November, and April or May, taking advantage of a wet day or two, when the horn will be more than usually soft. If there should be the slightest appearance of unsoundness at these periodical parings,

the proper applications should be made to the feet.—The sheep might occasionally be folded on some bare and hard spot, or driven twice or thrice in the week a little way along the road. Prevention would in this, and many other cases, preserve the animal from disease and torture, and the owner from expense and loss.

Of the Nature and Action of Manures.

[From *Chaptal's Chemistry applied to Agriculture*.]

Under the general head of manures are comprehended all those substances which, existing in the atmosphere or combining with the soil, can be drawn in by the organs of plants, and contribute to the progress of vegetation.

Manures are furnished by various bodies belonging to the three kingdoms of nature. Those most commonly employed are the results of decomposed vegetable substances, and some animal matters.

The salts, which likewise serve for manures, are imbibed by the pores of plants, and serve to stimulate vegetation.

By comprehending all these substances under the generic name of manures, too extensive a signification is given to the word. I divide manures into two classes; and in order to deviate as little as possible from the customary mode of expression, I shall call those nutritive manures, which supply plants with nourishment, and all those which excite the organs of digestion stimulating manures. These last are, strictly speaking, the seasoning; the spices, rather than the food.

I. OF NUTRITIVE MANURES.

The nutritive manures are those which contain juices or other substances, which, being dissolved in water, or otherwise divided to the most minute degree, are capable of being drawn into the organs of plants. All the vegetable and animal juices are of this description.

These substances are rarely employed in their natural state for the aliment of plants. It is generally considered preferable to allow them to putrify or ferment; the reason of this is simple. Besides the decomposition resulting from this operation, which renders the substances more soluble in water, the gases produced by it, such as the carbonic acid, the carburetted hydrogen, azote, and ammonia, furnish food for plants, or stimulants for their organs of digestion. It is not, however, well to prolong this decomposition too far; for if it be completed, there will remain only some fixed salts, mixed with those earths and juices which have resisted its action. Besides, the effect of manures, which have been entirely decomposed, is almost momentary, lasting but for a single season; whilst those which are employed before arriving at this state, continue to exert an influence for several years. In this last case, the decomposition, retarded by the separation of the manures into small portions, continues to go on gradually in the earth, and thus furnishes vegetation with its necessary aliments for a long time.

The excrements of animals, formed by the digestion of their food, have already undergone a decomposition which has disorganized the principles of their aliments, and in a greater or less degree changed their nature. The strength of the digestive organs, which varies in each species of animal, the difference of food, and the mixture of the digestive fluids furnished by the stomach, modify these manures to a very considerable extent.

The excrements of some animals, as of pigeons, fowls, &c. are employed without undergoing any new fermentation, because they consist mostly of salts, and contain but few juices. Fields are often manured with the excrements of sheep, collected in the sheep-folds, or scattered, as in parks, by the animals themselves upon the soil; but in general the dung of horses and of horned cattle is made to undergo a new fermentation before being applied as manure.

The most general method of producing the fermentation of the dung of quadrupeds, is, in the first place, to form upon the ground of sheep-folds and stables a bed of straw or dry leaves. This bed is covered with the solid excrements of the quadrupeds, and impregnated

* The arguments of Count Chaptal in favor of partially fermenting manures before they are applied, seem to rest wholly upon the supposition, that the fibrous and woody parts of vegetables do not readily become soluble in the soil. This conclusion will be correct according to circumstances. The refuse vegetable matters of common farm crops, as straw, stalks, &c. will decompose if burned in the soil, without any admixture, but with greater facility if mixed, as they are in the cattle-yard, with the dung and urine of animals, materials that have already undergone decomposition, according to the Count's showing. "which has disorganized the principles of their aliments, and in a greater or less degree changed their nature." And if these are not decomposed the first year, they are not lost, but, like the bone and the horn, they continue to impart their fertilizing influence for years. But if fermentation is permitted to go on in the yard, what do we lose? Why, according to our author, we lose the gases produced by it, "such as the carbonic acid, the carburetted hydrogen, azote and ammonia, [which] furnish food for plants, or stimulants for their organs of digestion." Under the fermenting process, we lose most of the active and valuable portions of the manure; under the mode of applying them in an unfermented state, we save these volatile properties, and ultimately lose nothing. The writer sets out with the proposition, that fermentation should precede the application of dung; but his arguments go conclusively to show, that fermentation should not precede its application. We suspect an error has here been committed, either in the translator or the printer; and that the proposition, like the proof, should stand in favor of unfermented, or but partially fermented manures—and not in favor of their being allowed to putrify or ferment.—*Cond. Cult.*

with their urine. At the end of fifteen days or a month, it is carried to a place suited for fermentation, and there formed anew, care being taken every day to spread upon it litter and the scatterings of the racks. The formation of these beds, contributes much to the healthfulness of the stables and to the cleanliness of the animals.—When from a scarcity of straw, the beds cannot be made of sufficient thickness, or renewed often enough, a layer may be formed of lime or gravel, broken fine and covered with straw. These earths will imbibe the urine, and when they are penetrated by it may be carried into the fields to be buried in the soil. The nature of the earth, upon which beds are formed in sheep folds or stables, should vary according to the character of the soil which is to receive them, because, by attention to this, the soil may be improved as well as manured.—For argillaceous and compact earths, the layers should be formed of gravel and the remains of old lime mortars; whilst those of fat marl or of clayey mud should be reserved for light and dry soils.*

In some countries where good husbandry is much attended to, the floors of the stables are paved and slightly sloping, so that the urine flows off into a reservoir, where it is fermented with animal and vegetable substances, and used to water the fields at the moment when vegetation begins to be developed.

The art of fermenting dung with litter is still very incomplete in some parts of France. In one place they let it decay till the straw is completely decomposed; in another they carry it into the fields as soon as it is taken from the stables. These two methods are equally faulty. By the first nearly all the gases and nutritive juices are dissipated and lost; by the second, fermentation, which can take place only in masses, will be but very imperfectly carried on in the fields, and the rains can convey to the plants only that portion of the nourishment afforded by the manure; which they can obtain by a simple washing.

The most useful art perhaps in agriculture, and that which requires the most care, is the preparation of the dung-heaps. It requires the application of certain chemical principles, which it is not necessary for me to explain, since it is sufficient to point out to the agriculturist the rules by which he should be governed in his proceedings, without requiring of him an extensive knowledge of the theory upon which they are founded.

Solid substances, whether animal, vegetable, or mineral, do not enter into plants unless they are previously dissolved in water, or are drawn in with that fluid in a state of extreme division.

Animal and vegetable substances which are by their nature insoluble in water, may, by being decomposed, form new soluble compounds, capable of furnishing nourishment for plants.

Animal and vegetable substances deprived by the action of water of their soluble particles, may, in the course of their decomposition, form new compounds susceptible of being dissolved. Of this I have given instances in speaking of mould.

That which renders the art of employing dung-heaps difficult, in proportion as it is useful, is, that some methods which are adopted occasion the loss of a part of the manure. In fact when the clearings of the farm-yard are carried fresh into the fields, and applied immediately to the soil, vegetation is undoubtedly benefited by the salts and the juices contained in them; but the fibres, the fatness, the oils, remain inactive in the earth; and their final decomposition is slow and imperfect. If, on the contrary, the collections of the farm-yard be heaped up in a corner of it, the mass will speedily become heated, carbonic acid gas will be evolved, and afterwards carburetted hydrogen, ammonia, azote, &c. A brown liquid, of which the colour deepens gradually almost to black, moistens the heap, and flows upon the ground around it; all is by degrees disorganized; and when the fermentation is completed, there remains only a residue composed of earthy and saline substances, mixed with a portion of blackened fibre, and some carbon in powder.

In those places where they do not allow fermentation to arrive to this degree of decomposition, they still lose, by mismanagement, a considerable part of their manure.

The most common method is, to deposite in a corner of the farm-yard the dung and litter, as it is drawn from the stables, adding to the mass every time these are cleared, and allowing it to ferment till the period of sowing arrives, whether it be in spring or autumn, when it is carried upon the fields requiring it.

This method presents many imperfections. In the first place, several successive layers being formed, no two of them can have undergone the same degree of fermentation; in some it will have gone on for six months, and in others but for fifteen days. In the second place, the heap, being exposed to rains, will, by frequent washings, have parted with nearly all its salts and soluble juices. In the third place, the extractive portions of the lower and central parts of the mass, the mucilage, the albumen, and the gelatine, will be entirely decomposed; and, lastly, those gases which nourish plants, if developed at their roots, will have escaped in-

* These processes involve too much labor for our farmers; they innovate too much upon their customary habits; and are, withal, we think unnecessary, in the present state of our husbandry. A capacious concave cattle-yard will form the cheapest, if not the best, bed for a compost for dung, urine and litter, and fermentation will have sufficiently progressed in April or May, when the mass should be taken to the field, and buried by the plough, for the hoed autumnal ripening crops, to afford a full benefit to the crops.—*Cond.*

to the air; and Davy has observed, that, by directing these emanations beneath the roots of the turf in a garden, the vegetation was rendered very superior to that in the vicinity.

How long should dung-hills be allowed to ferment; and what methods ought to be pursued in forming them? This question leads us to cast a glance upon the nature of dunghills; and it is not till after having ascertained the difference amongst them, that it can be answered.

The principal parts of vegetables which are employed as manure, contain mucilage, gelatine, oils, sugar, starch, extractive matter, and often albumen, acids, salts, &c. with an abundance of fibrous matter, insoluble in water.

The different substances afforded by animals, including all their excretions, are gelatine, fibrine, mucus, fat, albumen, urea, uric, and phosphoric acids, and some salts.

The greatest part of the substances, constituting animals and vegetables, are soluble in water, and it is evident that in that state they can be employed as manures without previous fermentation; but it is necessary, that those which contain much insoluble matter should be decomposed by fermentation, because by that process their nature is changed, and they form new compounds, which, being capable of solution, can pass into the organs of plants.

Messrs. Gay-Lussac and Thenard have obtained, by an analysis of the woody fibre, oxygen, hydrogen, and especially more carbon, than from any other part of the plant, and they have determined their several proportions. We know that fermentation carries off much carbon; it is then evident that, by causing the fermentation of the vegetable fibre, the principle which forms its distinguishing characteristic will be gradually diminished, and that it will no longer be a body insoluble in water. It is in this manner that woody plants and the driest leaves are converted into manure.

But as all the solid parts of plants contain fibres which cannot be rendered soluble in water, but by a long period of fermentation; and as it is in the fibre that carbon, a principle so necessary to vegetation, chiefly exists, the fermentation of plants is indispensable to the procuring of the best part of their manure.

The custom of appropriating some crops whilst green to the manuring of the ground, may perhaps be objected to; but I have observed, that in that case the plants are buried in the earth at the time of flowering; and whilst they are succulent, and their fibres soft, and but little formed; and that warmth and the action of the water in the earth was sufficient to decompose them; this would not take place if the stalks were dried and hardened by the formation of the grain.

The dung of quadrupeds may be mixed advantageously with the earth at the time of being taken from the stable, if it contain no litter, but if it does, it appears to me better to cause it to undergo a slight fermentation, in order to dispose the straw or leaves of which it is composed to become manure.

It is necessary, in producing the fermentation of dung and litter, to use certain precautions by which the inconveniences arising from the usual mode may be avoided.

Instead of heaping up in large masses the collections of the barn-yard and stables, and allowing them to rot uncovered, and exposed to the changes of weather, they should be placed under a shed, or be at least protected from the rain by a roof of straw or heath. Separate layers should be formed of each clearing of the stables, cow-house, and sheep-pens. These layers should be from a foot and a half to two feet in thickness; and when the heat, produced in them by fermentation, rises in the centre to more than 95°, or when the mass begins to smoke, it should be turned, to prevent decomposition from going too far.

Fermentation should be arrested as soon as the straw contained in the heap begins to turn brown, and its texture to be decomposed. To do this, the mass may be spread, or carried into the fields, to be immediately mixed with the soil; or there may be mixed with it mould, plaster, turf, sweepings, &c.

When the dung is not of the usual consistency, as is the case with that of neat cattle during the spring and autumn, it ought to be employed immediately, as I have already stated; but if it be impossible to apply it to the fields whilst recent, it should be mixed with earths or other dry and porous substances, which may serve as manures for the fields destined to receive it.

Upon nearly all our farms the dung of quadrupeds is exposed to the open air, without the protection of a shed, as soon as it is removed from the stables; and is thus washed by the rains, which carry off all the salts, urine, and soluble juices, and form at the foot of the mass a rivulet of blackish fluid, which is either wholly evaporated or lost in the ground. In proportion as fermentation advances, new soluble combinations are formed, so that all the nutritive and stimulating principles of the dung gradually disappear, till there remain only some weak portions of the manure, intermingled with stalks of straw which have lost all their goodness.

To remedy as much as possible an abuse so injurious to agriculture, it is necessary at least to dig a deep ditch to receive all the juices which flow from the dunghill, in order that they may be used in the spring upon the corn or grass lands; or they may be preserved to water the grass lands with, after the first mowing. A large cask, fixed upon a small cart, and which can be filled by means of a hand pump, is sufficient for this purpose. Beneath the tap of the cask must be fitted a narrow chest about four feet long, with the bottom pierced

with holes, through which the liquor may be scattered. This mode of watering, when used after mowing, produces wonderful effects upon the crop of the following year.

Before deciding upon the question, whether dung and litter should or should not be made to ferment, it is necessary to take into consideration the nature of the soil to be manured. If this be compact, clayey and cold, it is better that fermentation should not have taken place, as two effects will be produced by the application of the manure in an undecomposed state. In the first place it will improve the soil by softening and dividing it, so as to render it permeable by air and water; and in the next place it will, whilst undergoing the successive processes of fermentation and decomposition, warm the soil.* If, on the contrary, the soil be light, porous, calcareous, and warm, the thoroughly fermented manure or short muck, as it is called by farmers, is preferable, because it gives out less heat, and instead of opening the earth, already too porous, to the filtrations of water, it moderates the flow of that fluid. Long experience has made these truths known to observing, practical farmers.

When it is required to apply dung to any particular kind of soil, it is necessary that it should be used according to a knowledge of its qualities. The dung of animals bearing wool is the warmest; next, that of horses; whilst that of cows and oxen contains the least heat of any.

Soft or fluid animal substances change the most easily; and the progress of their decomposition is rapid in proportion to the diminution of the quantity of earthy salts contained in them. Their decomposition produces an abundance of ammoniacal gas. This circumstance distinguishes them from vegetable substances, the decomposition of which gives rise to the production of that gas, only as far as they contain a small portion of albumen. It is particularly to the development of ammoniacal gas, which, combined with gelatine, passes into plants, that we can attribute the wonderful effect produced upon vegetation by certain dry animal substances, of which we shall speak presently.

Next to the dung of animals, of which I have just spoken, the urine of horned cattle and of horses is the most abundant manure which can be used in agriculture; and it is not without regret that I see every day so little pains taken to collect it. I have already observed, that in those countries where agriculture is conducted with the most care and skill, all the stables are floored, and the bottoms of them gently sloping, so as to conduct all the urine into a reservoir, where the remains of rape seed, flax, wild cabbage, human excrements, &c. &c. are thrown into it to undergo fermentation. In the spring, when vegetation begins to be developed, this fermented liquor is carried into the fields to water the crops.

There are few animal substances of which the nature varies as much as that of urine; the quality of food, or the state of health, produces a sensible change in it.—The urine of animals is more or less abundant and active in its qualities, in proportion as their food is juicy or dry. Those which live upon dry fodder give less urine than those which are fed upon green herbage; but that of the first contains a greater quantity of salts than that of the last; and that which is produced directly by drink, contains less animal matter than that which is secreted from the blood by the urinary organs. There are different states of individuals, which may explain satisfactorily the disagreements in the results which have been given, by the numerous analyses which have been made of this fluid.

Mr. Brandt has found the urine of a cow to contain,	
Water,	65
Phosphate of lime,	5
Muriate of potash and ammonia,	15
Sulphate of potash,	6
Carbonate of potash and ammonia,	4
Urea,	5
100	

Messrs. Fourcroy and Vauquelin have extracted from that of the horse,

Carbonate of lime,	11
Carbonate of potash,	9
Benzoate of soda,	24
Muriate of potash,	9
Urea,	7
Water and mucilage,	940
1,000	

An analysis of human urine by M. Berzelius afforded,	
Water,	933
Urea,	30.1
Uric acid,	1
Muriate of ammonia, free lactic acid, lactate of ammonia, and animal matter, ..	17.4
981.5	

The remainder is composed of sulphates, phosphates, and muriates.

It may be seen from these analyses, that there is a wide difference in the urine of various animals, but that

* A virtual admission, that the vegetable litter of the yards will undergo fermentation in a compact, clayey, cold soil; of course this process will the more readily take place on a porous, light and warm soil. Whence, then, the economy of fermentation in the yard, at the expense of the volatile and more valuable parts of the manure? If fermentation will warm a cold soil, it will equally benefit a warm one, which we intend for our corn crop, and where the grand desideratum, in our northern climate, is to accelerate the growth and maturity of the crop.—*Contd.*

all contain salts which enter into plants, with the water by which they are held in solution; and draw in at the same time those animal portions, which, like urea, are easily soluble, and can be decomposed without difficulty.

Amongst the principles contained in urine, there are some salts undecomposable by the digestive organs of vegetables; such are the phosphate of lime, the muriate and the sulphate of potash. These can serve only to excite and stimulate the organs; but the urea, the mucilage, the uric acid, and other animal matters, must be considered as eminently nutritive. Urine in its recent state should never be employed as manure; it acts with too much force, and has a tendency to dry the plants; it should therefore be either mixed with water, or allowed to ferment.

Urine is very useful for moistening all those substances which enter into compost; it increases the fertilizing properties of each one of them, and facilitates the fermentation of those which need to be decomposed before yielding their nutritive qualities.

Urine, when combined with plaster, lime, &c. forms a very active manure for cold lands.

Bones have, at the present time, become in the hands of the agriculturist a powerful agent in fertilizing the soil. These parts of animals are principally composed of phosphate of lime and of gelatine. Those bones which are most usually employed, contain about equal quantities of phosphate and gelatine. The bones of the ox yield from fifty to fifty-five per cent of gelatine; those of the horse from thirty-six to forty; and those of the hog from forty-eight to fifty.

The bones of young animals contain more gelatine than those of older animals, and have a less compact texture. The bones of the feet of the elk, the roe-buck, stag, and hare afford, upon analysis, from eighty to ninety per cent of phosphate.

When bones are to be employed as a manure, they should be ground fine, and thrown into a heap to ferment. As soon as this action shall have commenced, so as to give out a penetrating odor, the mass should be spread upon the earth, and be afterwards mixed with it; or it may be thrown upon the seed, and buried in the ground with it. When seeds are sown in furrows, it is a good method to place some of the ground bones in the furrows with them.

In some countries the fat and the greater part of the gelatine are extracted from bones, by boiling them in water, before selling them for agricultural purposes.—But by this operation they are deprived of a great part of their fertilizing powers. Upon carefully observing the appearance of a mass of bones under fermentation, I found the surface of a part of them to be covered with a thin coating of an unctuous substance, sharp and biting to the taste. This appeared to me to be formed by the combination of gelatine with ammonia; this last being always developed during the decomposition of all animal substances. The observations of M. D'Arcet, to whom we are indebted for a very valuable work upon gelatine, support this opinion.

It is possible, that, when the ground bones are employed without having been first submitted to the commencement of a fermentation, the gelatine is gradually decomposed in the ground, and the same result at length produced; or, we can conceive that water, acting upon the bones, will dissolve the gelatine, and transmit it to plants; and in both these cases the influence of the bones upon vegetation is very great, whether it be considered as a purely nutritive manure, or in the double connexion of a nutritive and stimulating substance.

When bones are calcined in a close vessel, they yield oil and carbonate of ammonia; the proportion of the phosphate is not sensibly diminished; but the gelatine is decomposed. There remains after the operation from sixty-six to seventy-two per cent, of the weight of the bones employed. This residue, broken and pulverized with care, is of great use in the process of refining sugar. After having been used in this process, and become impregnated with ox blood and animal carbon, I have found it to be one of the best manures which I could employ for trefoil and clover. It should be scattered with the hand upon the plants, when vegetation begins to be developed in the spring.

Some of the dry parts of animals, as the horns, hoofs, and claws, approach closely to bones in the nature of their constituent principles; but the proportions of these vary prodigiously. In such parts, gelatine constitutes the largest portion; and for this reason they are more esteemed as manure than the bones. M. Merat-Guillot has found but twenty-seven per cent of phosphate of lime in the horn of a stag, and M. Hatchett, by an analysis of five hundred grains of the horn of an ox, gained only one-fifth part of earthy residuum, of which a little less than one-half was phosphate of lime.

The clippings and parings of horns form an excellent manure, of which the effect is prolonged during a succession of years, owing to the difficulty with which water penetrates them, and the little tendency they have to ferment.

A very good manure is likewise formed from wool. According to the ingenious experiments of M. Hatchett, hair, feathers, and wool are only particular combinations of gelatine with a substance analogous to albumen; water can only dissolve them by means of fermentation, which takes place slowly, and after a long time.

One of the most surprising instances of fertile vegetation that I have ever seen, is that of a field in the neighborhood of Montpellier, belonging to a manufacturer of woollen blankets. The owner of this land causes it to be dressed every year with the sweepings of his

work-shops; and the harvest of corn and fodder which it produces, are astonishing.

It is well known, that the hairs of wool transpire a fluid which hardens upon their surface, but which possesses the property of being easily soluble in water.—This substance has received the name of animal sweat; the water in which wool has been washed contains so much of it, as to make it very valuable as a manure.

I saw, thirty years since, a wool merchant in Montpellier, who had placed his wash-house for wool in the midst of a field, a great part of which he had transformed into a garden. In watering his vegetables, he had used no other water than that of the washings; and the beauty of his productions was so great, as to render his garden a place of general resort. The Genoese collect with care, in the south of France, all they can find of shreds and rags of woollen fabrics, to place at the foot of their olive trees.

According to the analysis of M. Vauquelin, this animal sweat is a soapy substance, consisting of a base of potash, with an excess of oily matter, and containing, besides, some acetate of potash, a little of carbonate and of the muriate of the same base, and a scented animal matter.

The dung of birds is another very valuable manure; differing from that of quadrupeds in the food's being better digested; in containing more animal matter, being richer in salts, and affording some of the principles which are found in the urine of four-footed animals.

The dung of those sea-fowls, which are so numerous in the islands of the Pacific ocean, and of which the excrement furnishes an important article of commerce with South America, as, according to the accounts of M. Humboldt, they import into Peru fifty shiploads of it annually, contains, besides a great quantity of uric acid partially saturated by ammonia and potash, some phosphate of lime, of ammonia and of potash, as well as some oily matter. Davy found the dung of a coromant to contain some uric acid.

The good effects resulting from the use of pigeons' dung, in our country, has caused it to be carefully collected. One hundred parts of this, when fresh, yielded to Davy twenty-five parts of matter soluble in water, whilst the same, after having undergone putrefaction, gave but eight; whence this able chemist concluded with reason, that it was necessary to employ it before being fermented. This is a warm manure, and may be scattered by the hand before covering the seed; or it may be used in the spring upon strong lands, when vegetation appears languid.

The excrement of the domestic fowl approaches nearly in its qualities to that of the pigeon, without, however, possessing the same degree of power. It contains also some uric acid, and may be applied to the same purposes as pigeons' dung.

In the south of France, where they raise many silk-worms, they make great use of the larvae, after the silk has been spun from the cocoons. They are spread at the foot of the mulberry and other trees, of which the vegetation is in a languishing condition; and this small quantity of manure reanimates them surprisingly. Upon distilling some of these larvae, I found more ammonia than I have ever met with in any other animal matter.

Night soil forms an excellent manure; but farmers allow it to be wasted, because it is too active to be employed in its natural state, and they know not how either to moderate its action, or to appropriate it during different stages of fermentation to the wants of various kinds of plants.

In Belgium, which has been the cradle of enlightened agriculture, and where good modes of cultivation are continued and constantly improved, they make astonishing use of this kind of manure. The first year of its decomposition, they cultivate upon the soil to which it is applied, oleaginous plants, such as hemp and flax; and the second year sow the land with corn. They likewise mix water with urine, and use it to water the fields in spring when vegetation begins to unfold. This substance is likewise dried and scattered upon fields of cabbage.

The Flemings value this kind of manure so much, that the cities set a high rate upon the privilege of disposing of the cleansings of their privies; and there are, in each one of them, sworn officers for the assistance of those who wish to make purchases. These officers know the degree of fermentation suited to each kind of plant, and to the different periods of vegetation.

We shall find great difficulty in bringing this branch of industry to the same degree of perfection amongst us, that it has arrived at in Belgium, because our farmers do not realize its importance, and have a repugnance to employing this kind of manure. But could they not collect carefully all these matters, mix them with lime, plaster, or gravel, till the odor was dispelled, and then carry the whole upon the fields?

Already, in most of our great cities, the contents of the privies are used for forming *poudrette*; this pulverulent product is sought for by our agriculturists, who acknowledge its good effects; let us hope, that, becoming more enlightened, they will employ the fecal matter itself, as being more rich in nutritive principles, and abounding equally in salts; they can easily govern and moderate the too powerful action of this, by fermentation, or what is still better, by mixing with it plaster, earth, and other absorbents, to correct the odor.

As dunghills are the riches of the fields, a good agriculturist will neglect no means of forming them; it ought to be his first and daily care; for without dung there is no harvest. The scarcity of dunghills, or what

is the same thing, the bad state of the crops, sufficiently proves the prejudices, by which the peasant is everywhere governed; and the habitual blindness with which he proceeds in his labors. In our country many of those who cultivate the land, know only the kinds of straw which are suitable for furnishing manure, and in a dunghill of litter, consider them as acting the principal part, whereas they are only feeble accessories.

According to the experiments of Davy, the straw of barley contains only two per cent of substance, soluble in water, and having a slight resemblance to mucilage; the remainder consists entirely of fibre, which can be decomposed only after a long time, and under circumstances calculated to facilitate the operation.

I do not believe that there is in the whole vegetable kingdom, an aliment affording so little nutriment, either for plants or animals, as the dry straw of grain: serving only to fill the stomachs of the latter; and furnishing to the former but about one hundredth part of its weight of soluble manure.

Weeds, leaves of trees, and all the succulent plants which grow so abundantly in ditches and waste lands, under hedges, and by the road side, if cut or pulled when in flower, and slightly fermented, furnish from twenty to twenty-five times more manure than straw does. These plants, carefully collected, furnish to the agriculturist an immense resource for enriching his lands. Besides the advantage arising from the manure furnished by these plants, the agriculturist will find his account in preventing the dissemination of their seeds, which, by propagating in the fields, deprive the crops of the nourishment of the soil. The turf, that borders fields and highways, may be made to answer the same purpose, by cutting it up with all the roots and the earth adhering to them, rotting the whole in a heap, and afterwards carrying the mass upon the fields, or what is still better, by burning it, and dressing the land with the products of the combustion.

If straw did not serve as beds for animals, and did not contribute, at the same time, to their health and cleanliness, it would be better to cut the ears of corn and leave the stalks in the fields; since they serve only as absorbents of the true manures.

It is always said that barn-yard manure, besides its nutritive virtues, possesses the advantage of softening hard lands, and rendering them permeable by air and water. I do not deny the truth of this; I even acknowledge that it owes this property almost entirely to the straw which it contains; but the same effect would be produced by burying the straw upon the spot.

[Remainder in our next.]

Young Men's Department.

Self-Culture.

BY W. E. CHANNING, D.D.

(Concluded.)

Among the best people, especially among the more religious, there are some, who, through disgust with the violence and frauds of parties, withdraw themselves from all political action. Such, I conceive, do wrong. God has placed them in the relations, and imposed on them the duties of citizens; and they are no more authorized to shrink from these duties than from those of sons, husbands, or fathers. They owe a great debt to their country, and must discharge it by giving support to what they deem the best men and the best measures. Nor let them say, that they can do nothing. Every good man, if faithful to his convictions, benefits his country. All parties are kept in check by the spirit of the better portion of people, whom they contain. Leaders are always compelled to ask what their party will bear, and to modify their measures, so as not to shock the men of principle within their ranks. A good man, not tamely subservient to the body with which he acts, but judging it impartially, criticising it freely, bearing testimony against its evils, and withholding his support from wrong, does good to those around him, and is cultivating generously his own mind.

I respectfully counsel those, whom I address, to take part in the politics of their country. These are the true discipline of a people, and do much for their education. I counsel you to labor for a clear understanding of the subjects which agitate the community, to make them your study, instead of wasting your leisure in vague, passionate talk about them. The time, thrown away by the mass of the people on the rumors of the day, might, if better spent, give them a good acquaintance with the constitution, laws, history and interests of their country, and thus establish them in those great principles by which particular measures are to be determined. In proportion as the people thus improve themselves, they will cease to be the tools of designing politicians. Their intelligence, not their passions and jealousies, will be addressed by those who seek their votes. They will exert, not a nominal, but a real influence on the government and the destinies of the country, and at the same time will forward their own growth in truth and virtue.

I ought not to quit this subject of politics, considered as a means of self-culture, without speaking of newspapers; because these form the chief reading of the bulk of the people. They are the literature of multitudes. Unhappily their importance is not understood; their bearing on the intellectual and moral cultivation of the community, little thought of. A newspaper ought to be conducted by one of our most gifted men, and its income should be such as to enable him to secure the contribution of

men as gifted as himself. But we must take newspapers as they are; and a man, anxious for self-culture, may turn them to account, if he will select the best within his reach. He should exclude from his house such as are venomous or scurrilous, as he would a pestilence. He should be swayed in his choice, not merely by the ability with which a paper is conducted, but still more by its spirit, by its justice, fairness and steady adherence to great principles. Especially, if he would know the truth, let him hear both sides. Let him read the defence as well as the attack. Let him not give his ear to one party exclusively. We condemn ourselves, when we listen to reproaches thrown on an individual and turn away from his exculpation; and is it just to read continual, unsparing invective against large masses of men, and refuse them the opportunity of justifying themselves?

A new class of daily papers has sprung up in our country, sometimes called cent papers, and designed for circulation among those who cannot afford costlier publications. My interest in the working class induced me sometime ago to take one of these, and I was gratified to find it not wanting in useful matter. Two things however gave me pain. The advertising columns were devoted very much to patent medicines; and when I considered that a laboring man's whole fortune is his health I could not but lament, that so much was done to seduce him to the use of articles, more fitted, I fear, to undermine than to restore his constitution. I was also shocked by accounts of trials in the police court. These were written in a style adapted to the most uncultivated minds, and intended to turn into matters of sport the most painful and humiliating events of life. Were the newspapers of the rich to attempt to extract amusement from the vices and miseries of the poor, a cry would be raised against them, and very justly. But is it not something worse, that the poorer classes themselves should seek occasions of laughter and merriment in the degradation, the crimes, the woes, the punishments of their brethren, of those who are doomed to bear like themselves the heaviest burdens of life, and who have sunk under the temptations of poverty? Better go to the hospital, and laugh over the wounds and writhings of the sick or the ravings of the insane, than amuse ourselves with brutal excesses and infernal passions, which not only expose the criminal to the crushing penalties of human laws, but incur the displeasure of Heaven, and, if not repented of, will be followed by the fearful retribution of the life to come.

One important topic remains. That great means of self-improvement, Christianity, is yet untouched, and its greatness forbids me now to approach it. I will only say, that if you study Christianity in its original records and not in human creeds; if you consider its clear revelations of God, its life-giving promises of pardon and spiritual strength, its correspondence to man's reason, conscience and best affections, and its adaptation to his wants, sorrows, anxieties and fears; if you consider the strength of its proofs, the purity of its precepts, the divine greatness of the character of its author, and the immortality which it opens before you, you will feel yourselves bound to welcome it joyfully, gratefully, as affording aids and incitements to self-culture, which would vainly be sought in all other means.

I have thus presented a few of the means of self-culture. The topics, now discussed, will I hope suggest others to those who have honored me with their attention, and create an interest which will extend beyond the present hour. I owe it however to truth to make one remark. I wish to raise no unreasonable hopes. I must say then, that the means, now recommended to you, though they will richly reward every man of age who will faithfully use them, will yet not produce their full and happiest effect, except in cases where early education has prepared the mind for future improvement. They, whose childhood has been neglected, though they may make progress in future life, can hardly repair the loss of their first years; and I say this, that we may all be excited to save our children from this loss, that we may prepare them, to the extent of our power, for an effectual use of all the means of self-culture, which adult age may bring with it. With these views, I ask you to look with favor on the recent exertions of our legislature and of private citizens, in behalf of our public schools, the chief hope of our country. The legislature has of late appointed a board of education, with a secretary, who is to devote his whole time to the improvement of public schools. An individual more fitted to this responsible office, than the gentleman who now fills it,* cannot, I believe, be found in our community; and if his labors shall be crowned with success, he will earn a title to the gratitude of the good people of this State, unsurpassed by that of any other living citizen. Let me also recall to your minds a munificent individual,† who, by a generous donation, has encouraged the legislature to resolve on the establishment of one or more institutions called Normal Schools, the object of which is, to prepare accomplished teachers of youth, a work, on which the progress of education depends more than on any other measure. The efficient friends of education are the true benefactors of their country, and their names deserve to be handed down to that posterity, for whose highest wants they are generously providing.

There is another mode of advancing education in our whole country, to which I ask your particular attention. You are aware of the vast extent and value of the public lands of the union. By annual sales of these, large amounts of money are brought into the national trea-

* Horace Mann.

† Edmund Dwight, Esq.

sure, which are applied to the current expenses of the government. For this application there is no need. In truth, the country has received detriment from the excess of its revenues. Now, I ask, why shall not the public lands be consecrated, (in whole or in part, as the case may require,) to the education of the people? This measure would secure at once what the country most needs, that is, able, accomplished, quickening teachers of the whole rising generation. The present poor remuneration of instructors is a dark omen, and the only real obstacle which the cause of education has to contend with. We need for our schools gifted men and women, worthy, by their intelligence and their moral power, to be entrusted with a nation's youth; and to gain these we must pay them liberally, as well as afford other proofs of the consideration in which we hold them. In the present state of the country, when so many paths of wealth and promotion are opened, superior men cannot be won to an office so responsible and laborious as that of teaching, without stronger inducements than are now offered, except in some of our large cities. The office of instructor ought to rank and be recompensed as one of the most honorable in society; and I see not how this is to be done, at least in our day, without appropriating to it the public domain. This is the people's property, and the only part of their property which is likely to be soon devoted to the support of a high order of institutions for public education. This object, interesting to all classes of society, has peculiar claims on those, whose means of improvement are restricted by narrow circumstances. The mass of the people should devote themselves to it as one man, should toil for it with one soul. Mechanics, Farmers, Laborers! Let the country echo with your united cry, "The Public Lands for Education." Send to the public councils men who will plead this cause with power. No party triumphs, no trades-unions, no associations, can so contribute to elevate you as the measure now proposed. Nothing but a higher education can raise you in influence and true dignity. The resources of the public domain, wisely applied for successive generations to the culture of society and of the individual, would create a new people, would awaken through this community intellectual and moral energies, such as the records of no country display, and as would command the respect and emulation of the civilized world. In this grand object, the working men of all parties, and in all divisions of the land, should join with an enthusiasm not to be withstood. They should separate it from all narrow and local strifes. They should not suffer it to be mixed up with the schemes of politicians. In it, they and their children have an infinite stake. May they be true to themselves, to posterity, to their country, to freedom, to the cause of mankind.

III. I am aware that the whole doctrine of this discourse will meet opposition. There are not a few who will say to me, "What you tell us sounds well; but it is impracticable. Men, who dream in their closets, spin beautiful theories; but actual life scatters them, as the wind snaps the cobweb. You would have all men to be cultivated; but necessity wills that most men shall work; and which of the two is likely to prevail? A weak sentimentality may shrink from the truth; still it is true, that most men were made, not for self-culture, but for toil."

I have put the objection into strong language, that we may all look it fairly in the face. For one I deny its validity. Reason as well as sentiment rises up against it. The presumption is certainly very strong, that the All-wise Father, who has given to every human being, reason and conscience and affection, intended that these should be unfolded; and it is hard to believe, that He, who, by conferring this nature on all men, has made all his children, has destined the great majority to wear out a life of drudgery and unimproving toil, for the benefit of a few. God cannot have made spiritual beings to be dwarfed. In the body we see no organs created to shrivel by disuse; much less are the powers of the soul given to be locked up in perpetual lethargy.

Perhaps it will be replied, that the purpose of the Creator is to be gathered, not from theory, but from facts; and that it is a plain fact, that the order and prosperity of society, which God must be supposed to intend, require from the multitude the action of their hand and not the improvement of their minds. I reply, that a social order, demanding the sacrifice of the mind, is very suspicious, that it cannot indeed be sanctioned by the Creator. Were I, on visiting a strange country, to see the vast majority of the people maimed, crippled, and bereft of sight, and were I told that social order required this mutilation, I should say, Perish this order. Who would not think his understanding as well as best feelings insulted, by hearing this spoken of as the intention of God. Nor ought we to look with less aversion on a social system, which can only be upheld by crippling and blinding the Minds of the people.

But to come nearer to the point. Are labor and self-culture irreconcilable to each other? In the first place, we have seen that a man in the midst of labor, may and ought to give himself to the most important improvements, that he may cultivate his sense of justice, his benevolence, and the desire of perfection. Toil is the school for these high principles; and we have here a strong presumption, that, in other respects, it does not necessarily blight the soul. Next we have seen, that the most fruitful sources of truth and wisdom are not books, precious as they are, but experience and observation; and these belong to all conditions. It is another important consideration, that almost all labor demands intellectual activity, and is best carried on by those who

invigorate their minds; so that the two interests, toil and self-culture, are friends to each other. It is Mind, after all, which does the work of the world, so that the more there is of mind, the more work will be accomplished. A man, in proportion as he is intelligent, makes a given force accomplish a greater task, makes skill take the place of muscles, and with less labor, gives a better product. Make men intelligent and they become inventive. They find shorter processes. Their knowledge of nature helps them to turn its laws to account, to understand the substances on which they work, and to seize on useful hints, which experience continually furnishes. It is among workmen, that some of the most useful machines have been contrived. Spread education, and, as the history of this country shows, there will be no bounds to useful inventions.

But it is said, that any considerable education lifts men above their work, makes them look with disgust on their trades as mean and low, makes drudgery intolerable. I reply that a man becomes interested in labor, just in proportion as the mind works with the hands. An enlightened farmer, who understands agricultural chemistry, the laws of vegetation, the structure of plants, the properties of manures, the influences of climate, who looks intelligently on his work and brings his knowledge to bear on exigencies, is a much more cheerful as well as more dignified laborer, than the peasant, whose mind is akin to the clod on which he treads, and whose whole life is the same dull, unthinking, unimproving toil. But this is not all. Why is it, I ask, that we call manual labor low, that we associate with it the idea of meanness, and think that an intelligent people must scorn it? The great reason is, that, in most countries, so few intelligent people have been engaged in it. Once let cultivated men plough and dig and follow the commonest labors, and ploughing, digging and trades will cease to be mean. It is the man who determines the dignity of the occupation, not the occupation which measures the dignity of the man. Physicians and surgeons perform operations less cleanly than fall to the lot of most mechanics. I have seen a distinguished chemist covered with dust like a laborer. Still these men were not degraded. Their intelligence gave dignity to their work, and so our laborers, once educated, will give dignity to their toils.—Let me add, that I see little difference in point of dignity, between the various vocations of men. When I see a clerk, spending his days in adding figures, perhaps merely copying, or a teller of a bank counting money, or a merchant selling shoes and hides, I cannot see in these occupations greater respectableness than in making leather, shoes, or furniture. I do not see in them greater intellectual activity than in several trades. A man in the fields seems to have more chances of improvement in his work, than a man behind the counter, or a man driving the quill. It is the sign of a narrow mind, to imagine as many seem to do, that there is a repugnance between the plain, coarse exterior of a laborer and mental culture, especially the more refining culture. The laborer, under his dust and sweat, carries the grand elements of humanity, and he may put forth its highest powers. I doubt not, there is as genuine enthusiasm in the contemplation of nature and in the perusal of works of genius, under a homespun garb as under finery. We have heard of a distinguished author, who never wrote so well, as when he was full dressed for company. But profound thought and poetical inspiration have most generally visited men, when, from narrow circumstances or negligent habits, the rent coat and shaggy face have made them quite unfit for polished saloons. A man may see truth, and may be thrilled with beauty, in one costume or dwelling as well as another; and he should respect himself the more for the hardships, under which his intellectual force has been developed.

But it will be asked, how can the laboring classes find time for self-culture. I answer, as I have already intimated, that an earnest purpose finds time or makes time. It seizes on spare moments, and turns larger fragments of leisure to golden account. A man, who follows his calling with industry and spirit, and uses his earnings economically, will always have some portion of the day at command; and it is astonishing, how fruitful of improvement a short season becomes, when eagerly seized and faithfully used. It has often been observed, that they, who have most time at their disposal, profit by it least. A single hour in the day, steadily given to the study of an interesting subject brings unexpected accumulations of knowledge. The improvements made by well disposed pupils, in many of our country schools, which are open but three months in the year, and in our Sunday schools, which are kept but one or two hours in the week, show what can be brought to pass by slender means. The affections, it is said sometimes crowd years into moments, and the intellect has something of the same power. Volumes have not only been read, but written, in flying journeys. I have known a man of vigorous intellect, who had enjoyed few advantages of early education, and whose mind was almost engrossed by the details of an extensive business, but who composed a book of much original thought, in steam-boats and on horseback, while visiting distant customers. The succession of the seasons gives to many of the working class opportunities for intellectual improvement. The winter brings leisure to the husbandman, and winter evenings to many laborers in the city. Above all, in Christian countries, the seventh day is released from toil. The seventh part of the year, no small portion of existence, may be given by almost every one to intellectual and moral culture. Why is it that Sunday is not made a more effectual means of improvement? Undoubtedly the seventh day is to have a religious character; but re-

ligion connects itself with all the great subjects of human thought, and leads to and aids the study of all. God is in nature. God is in history. Instruction in the works of the Creator, so as to reveal his perfection in their harmony, beneficence and grandeur; instruction in the histories of the church and the world, so as to show in all events his moral government, and to bring out the great moral lessons in which human life abounds; instruction in the lives of philanthropists, of saints, of men eminent for piety and virtue; all these branches of teaching enter into religion, and are appropriate to Sunday; and through these, a vast amount of knowledge may be given to the people. Sunday ought not to remain the dull and fruitless season, that it now is to multitudes. It may be clothed with a new interest and a new sanctity. It may give a new impulse to the nation's soul.—I have thus shown, that time may be found for improvement; and the fact is, that among our most improved people, a considerable part consists of persons, who pass the greatest portion of every day at the desk, in the counting room, or in some other sphere, chained to tasks which have very little tendency to expand the mind. In the progress of society with the increase of machinery, and with other aids which intelligence and philanthropy will multiply, we may expect that more and more time will be redeemed from manual labor, for intellectual and social occupations.

But some will say, "Be it granted that the working classes may find some leisure; should they not be allowed to spend it in relaxation? Is it not cruel, to summon them from toils of the hand to toils of the mind? They have earned pleasure by the day's toil and ought to partake it." Yes, let them have pleasure. Far be it from me to dry up the fountains, to blight the spots of verdure, where they refresh themselves after life's labors. But I maintain, that self-culture multiplies and increases their pleasures, that it creates new capacities of enjoyment, that it saves their leisure from being, what it too often is, dull and wearisome, that it saves them from rushing for excitement to indulgences destructive to body and soul. It is one of the great benefits of self-improvement, that it raises a people above the gratifications of the brute, and gives them pleasures worthy of men. In consequence of the present intellectual culture of our country, imperfect as it is, a vast amount of enjoyment is communicated to men, women and children, of all conditions, by books, an enjoyment unknown to ruder times. At this moment, a number of gifted writers are employed in multiplying entertaining works. Walter Scott, a name conspicuous among the brightest of his day, poured out his inexhaustible mind in fictions, at once so sportive and thrilling, that they have taken their place among the delights of all civilized nations. How many millions have been chained to his pages! How many melancholy spirits has he steeped in forgetfulness of their cares and sorrows! What multitudes, wearied by their day's work, have owed some bright evening hours and balmy sleep to his magical creations! And not only do fictions give pleasure. In proportion as the mind is cultivated, it takes delight in history and biography, in descriptions of nature, in travels, in poetry, and even graver works. Is the laborer then defrauded of pleasure by improvement? There is another class of gratifications to which self-culture introduces the mass of the people. I refer to lectures, discussions, meetings of associations for benevolent and literary purposes, and to other like methods of passing the evening, which every year is multiplying among us. A popular address from an enlightened man, who has the tact to reach the minds of the people, is a high gratification, as well as a source of knowledge. The profound silence in our public halls, where these lectures are delivered to crowds, show that cultivation is no foe to enjoyment.—I have a strong hope, that by the progress of intelligence, taste, and morals among all portions of society, a class of public amusements will grow up among us, bearing some resemblance to the theatre, but purified from the gross evils which degrade our present stage, and which, I trust, will seal its ruin. Dramatic performances and recitations are means of bringing the mass of the people into a quicker sympathy with a writer of genius, to a profounder comprehension of his grand, beautiful, touching conceptions, than can be effected by the reading of the closet. No commentary throws such a light on a great poem or any impassioned work of literature, as the voice of a reader or speaker, who brings to the task a deep feeling of his author and rich and various powers of expression. A crowd, electrified by a sublime thought, or softened into a humanizing sorrow, under such a voice, partake a pleasure at once exquisite and refined; and I cannot but believe, that this and other amusements, at which the delicacy of woman and the purity of the christian can take no offence, are to grow up under a high social culture. Let me only add, that in proportion as culture spreads among a people, the cheapest and commonest of all pleasures, conversation, increases in delight. This, after all, is the great amusement of life, cheering us round our hearths, often cheering our work, stirring our hearts gently, acting on us like the balmy air or the bright light of heaven, so silently and continually, that we hardly think of its influence. This source of happiness is too often lost to men of all classes for want of knowledge, mental activity, and refinement of feeling; and do we defraud the laborer of his pleasure, by recommending to him improvements which will place the daily, hourly, blessings of conversation within his reach.

I have thus considered some of the common objections which start up when the culture of the mass of men is insisted on, as the great end of society. For myself,

these objections seem worthy little notice. The doctrine is too shocking to need refutation, that the great majority of human beings, endowed as they are with rational and immortal powers, are placed on earth, simply to toil for their own animal subsistence, and to minister to the luxury and elevation of the few. It is monstrous, it approaches impiety, to suppose that God has placed insuperable barriers to the expansion of the free illimitable soul. True, there are obstructions in the way of improvement. But in this country, the chief obstructions lie, not in our lot, but in ourselves, not in outward hardships, but in our worldly and sensual propensities; and one proof of this is, that a true self culture is as little thought of on exchange as in the workshop, as little among the prosperous as among those of narrower conditions. The path to perfection is difficult to men in every lot; there is no royal road for rich or poor. But difficulties are meant to rouse, not discourage. The human spirit is to grow strong by conflict. And how much has it already overcome! Under what burdens of oppression has it made its way for ages. What mountains of difficulty has it cleared! And with all this experience, shall we say, that the progress of the mass of men is to be despaired of, that the chains of bodily necessity are too strong and ponderous to be broken by the mind, that servile, unimproving drudgery is the unalterable condition of the multitude of the human race?

I conclude with recalling to you the happiest feature of our age, and that is, the progress of the mass of the people in intelligence, self-respect, and all the comforts of life. What a contrast does the present form with past times? Not many ages ago, the nation was the property of one man, and all its interests were staked in perpetual games of war, for no end but to build up his family, or to bring new territories under his yoke. Society was divided into two classes, the highborn and the vulgar, separated from one another by a great gulf, as impassable as that between the saved and the lost. The people had no significance as individuals, but formed a mass, a machine, to be wielded at pleasure by their lords. In war which was the great sport of the times, those brave knights, of whose prowess we hear, eased themselves and their horses in armour, so as to be almost invulnerable, whilst the common people on foot were left, without protection, to be hewn in pieces or trampled down by their betters. Who, that compares the condition of Europe a few ages ago, with the present state of the world, but must bless God for the change. The grand distinction of modern times is, the emerging of the people from brutal degradation, the gradual recognition of their rights, the gradual diffusion among them of the means of improvement and happiness, the creation of a new power in the state, the power of the people. And it is worthy remark, that this revolution is due in a great degree to religion, which, in the hands of the crafty and aspiring, had bowed the multitude to the dust, but which, in the fulness of time, began to fulfil its mission of freedom. It was religion, which, by teaching men their near relation to God, awakened in them the consciousness of their importance as individuals. It was the struggle for religious rights, which opened men's eyes to all their rights. It was resistance to religious usurpation, which led men to withstand political oppression. It was religious discussion, which roused the minds of all classes to free and vigorous thought. It was religion, which armed the martyr and patriot in England against arbitrary power, which braced the spirits of our fathers against the perils of the ocean and wilderness, and sent them to found here the freest and most equal state on earth.

Let us thank God for what has been gained. But let us not think every thing gained. Let the people feel that they have only started in the race. How much remains to be done? What a vast amount of ignorance, intemperance, coarseness, sensuality, may still be found in our community! What a vast amount of mind is palsied and lost! When we think, that every house might be cheered by intelligence, disinterestedness and refinement, and then remember, in how many houses the higher powers and affections of human nature are buried as in tombs, what a darkness gathers over society. And how few of us are moved by this moral desolation? How few understand, that to raise the depressed, by a wise culture, to the dignity of men, is the highest end of the social state? Shame on us, that the worth of a fellow creature is so little felt.

I would, that I could speak with an awakenig voice to the people, of their wants, their privileges, their responsibilities. I would say to them, you cannot, without guilt and disgrace, stop where you are. The past and the present call on you to advance. Let what you have gained be an impulse to something higher. Your nature is too great to be crushed. You were not created what you are, merely to toil, eat, drink and sleep, like the inferior animals. If you will, you can rise. No power in society, no hardship in your condition can depress you, keep you down, in knowledge, power, virtue, influence, but by your own consent. Do not be lulled to sleep by the flatteries which you hear, as if your participation in the national sovereignty made you equal to the noblest of your race. You have many and great deficiencies to be remedied: and the remedy lies, not in the ballot box, not in the exercise of your political powers, but in the faithful education of yourselves and your children. These truths you have often heard and slept over. Awake! Resolve earnestly on self-culture.—Make yourselves worthy of your free institutions, and strengthen and perpetuate them by your intelligence and your virtues.

Culture of the Mind.

Mind makes the man—
Want of it the fellow.

This motto, somewhat altered from Pope, has a peculiar bearing upon the agriculturist. The farmer possesses all the privileges, and most of the advantages, of other classes of the community; and if he will improve his mind, his influence will be as potent, and his example as salutary, as the influence and example of any other profession. The richest natural soil will produce neither bread nor meat without culture. The highest natural gifts of intellect will not profit the possessor, unless, like the rich soil, they are cultivated with assiduity and care. Good culture not only improves the mind, and fits it for high mental gratification and enjoyment, but it lightens the toils, and greatly increases the profits of labor. Franklin owed his fame, his fortune and his usefulness, to his early habits of study, of industry, and of virtue. Without these early habits, he probably would have risen to neither fame nor fortune. Some minds, like some soils, are naturally richer than others; yet even apparently sterile minds, like infertile soils, may, by good culture, be made to yield great returns. Let the young farmer, then, aspire to the highest honors of the nation, by endeavoring to improve his intellectual faculties; and if he does not attain the goal of his wishes, he may be sure of greatly improving his condition, and of benefiting others, provided always, that he is industrious and honest. However menial and servile agricultural labor may have been considered among the privileged classes of Europe; and however degrading it may yet be held by the would-be aristocracy of America, it has commanded the highest respects of good men in every age, and constituted, in our country, the favorite study and employment of a Washington, a Jefferson, a Madison, a Monroe, and a Jackson; of an Humphrey, a Livingston, a Shelby, an Armstrong, a Lowell, a Lincoln, and a great many others, whose names will stand out in bold relief upon the future annals of our country. Let, then, no young aspirant for fame and usefulness, shun rural employment, because it does not feed his hopes of distinction, and let no one, engaged in this employment forego the opportunity, which his condition presents, of cultivating his mind, as the surest means of sinking the fellow, and rising to the dignity of the man.

Price of advertising, \$1 for three insertions of ten lines or less.

GREAT SALE OF IMPROVED SHORT-HORN CATTLE AND BLOOD HORSES.—The subscribers will sell at auction, on *Thursday the 10th day of September next*, at the farm of Samuel Allen, on the Niagara river, two miles below Black-Rock, the entire stock of Imported Short-Horn Cattle, for several years past bred on the farm of L. F. Allen, on Grand-Island.

The herd consists of about thirty, including Cows, Bulls, Heifers and Calves. Several of them have been imported by one of the subscribers, direct from England, and with their produce, are surpassed by few animals in the country. In addition to these, every animal offered is the direct descendant of thorough bred imported stock, and of unquestionable purity of blood.

With the above will be sold twenty select and beautiful animals, consisting of pure Devon; crosses of different degrees between the Devon and Improved Short-Horns; crosses of the Alderney and Ayreshire with the Short-Horns. These are Cows, Heifers and Calves, all superior animals.

ALSO—The superb horse "BELL-FOUNDER," got by imported Bellfounder, the best thorough-bred trotting horse ever in America, and out of the imported mare Lady Allport, bred by T. T. Kism, Esq. of Long-Island. The stock of this horse is unsurpassed in the country for size, speed and action—together with several elegant, thorough-bred breeding mares and fillies, and two or three young horse colts, the produce of the above. These animals are of the highest character as roadsters, and as trotters, no blood in the country has excelled them. They are all from the best stables of Long-Island. Also, a beautiful pair of full-bred matched fillies, five years old. All these horses are blood bay.

This entire stock will be sold without reserve, to the highest bidder, commencing at 10 o'clock A. M. They can be shipped within an hour from the farm, on board the steamboats to go up the Lakes, or on board canal boats at the farm.

Catalogues of the animals, with descriptions and pedigrees, will be prepared, and the stock may be viewed at the farm previous to the sale. A credit of sixty days will be given on approved notes or acceptances, payable at a bank either in Buffalo, Albany, or New-York, for all sums over \$300.

LEWIS F. ALLEN,
SAMUEL ALLEN.

Black-Rock, N. Y. June 25, 1839.

The "Ohio Farmer" and "Lexington (Ky.) Intelligencer," will please insert the above till first September, and send their bills to the subscribers for payment.

A FEW COPIES of the published volumes of the "FARMER'S CABINET," bound in boards, published at Philadelphia, have been received, and are for sale at the Cultivator office. A subscription has also been received for the "BOSTON CULTIVATOR." Subscriptions are also received for any and all of the agricultural publications published in the United States.

We repeat the remark, that no one periodical can, or does contain, all that it is interesting for the farmer to know, in order to improve his business; and that we shall very cheerfully lend our aid, free of charge, to furnish any gentleman, or association, with such agricultural periodicals as they may desire. Our professed object being the promotion of agricultural improvement, the conductors of agricultural journals are persuaded, that the harvest will be in proportion to the seed sown. August, 1839.

IMPROVED DURHAM SHORT-HORNS.—Mr. WHITAKER'S third sale of high bred improved Short-Horns, by the ship Napier, will be held at Powelton, near Philadelphia, on Friday the 20th September, 1839, at 10 o'clock A. M.

The subscriber is authorized by Col. Powell to say, that all the best cattle which he has at any time imported, and the improved short-horns which he considered the best in England, were either in Mr. Whitaker's possession, or were derived from his fold. Col. Powell has not the slightest interest in Mr. Whitaker's sales. Philadelphia, July 15, 1839.
C. J. WOOLBERT, Auctioneer.

NEW-YORK URATE AND POUURETTE COMPANY, not incorporated, but carried on by individual enterprise. The manures are not divided among the stockholders, as are those belonging to another establishment, but sold to applicants for cash on delivery. Orders are supplied in the order of time in which they are received. Urate 50 cents and Poudrette 40 cents per bushel, with contingent charges for bags or barrels, &c.

The company are daily preparing for use, during the warm dry weather, the materials collected during the past winter, and will have several thousand bushels ready before the first of October next. The material is disinfected and rendered free from offensive smell by a compound, every part of which is in itself a good manure. The experience of the past and present year, 1838 and 1839, on Long Island, has satisfied many of the farmers that these manures have the quickest operation upon vegetable matter, producing greater abundance, and the cheapest of any manure they have ever tried.

Amended instructions for their use, the result of practical experience, will be furnished on application. The effect of Poudrette upon grape vines and morus multicaulis is beyond all comparison. This company are erecting large and extensive works in the vicinity of the city of New-York to prepare the manures; and farmers and gardeners may confidently rely on a supply. Orders, post paid, directed to "The New-York Urate and Poudrette Company," box number 1, 211, post-office, New-York, or sent to the store of STILLWELL & DEY, number 365, Fulton-street, Brooklyn, will be attended to. New-York, July 17, 1839.

The company will be very much obliged to gentlemen who have used the manures, to give them a statement in writing what has been the result of their use and experiments in relation to them. aug-4t.

WATKINS' PATENT WHEAT FANS, GRAIN CRADLES, and every other variety of tool required for harvesting, for sale by R. SINCLAIR & Co. Baltimore, Md. July-2t

AGRICULTURAL WAREHOUSE AND SEED STORE, 79 Barclay-street, New-York. At this old established stand, the subscribers take pleasure in announcing to the public, that they have made extensive arrangements to accommodate farmers: in all articles connected with husbandry, viz:—Agricultural implements, a full and fresh supply of Field and Garden Seeds, Fruit Trees, Durham Cattle, Chinese and Berkshire pigs, 10,000 morus multicaulis mulberry trees, publications on rural subjects, &c.

Published here, the Rural Library, S. Fleet, editor; a few copies of 1st vol. for sale. The object of this work is to constitute a library at the least possible expense. 2d vol. commencing with Prof. Low's Elements of Practical Agriculture, with nearly 250 fine engravings; subscription \$3. Subscriptions received for the Genesee Farmer, Cultivator, &c. July-3t J. W. WEAVER & Co. 79 Barclay-st. N. Y.

FOR SALE—A splendid Farm, in the town of Hillsdale, Columbia county, N. Y. situated 18 miles east of the city of Hudson, containing about 208 acres of first rate land, about 180 of which is fine level arable soil, of an excellent quality, in a good state of cultivation, and on a very public road from New-York to Albany, and not surpassed by any in Columbia, for fertility; the remainder in fine timber, about 30 acres of good pine and chestnut timber. This situation is the most splendid in the town of Hillsdale. The farm can conveniently be divided in two farms, giving an equal quantity of timber land to each. There is a beautiful grove of fruit and ornamental trees about the main dwelling; also three other DWELLING-HOUSES, three Barns, besides Hay Barns and Barracks, Sheds, &c. Also, out-houses of almost every description, and in first rate order.

Also—Several lots of land in the counties of Broome and Tioga. Terms of payment made to suit the purchaser. Inquire of the subscriber on the premises. July-2t BARENT WAGER, Hillsdale.

FOR SALE—A Splendid Country Seat in the Highlands, on the Hudson River. That beautiful country residence, known by the name of the BEVERLY ESTATE, containing four hundred acres of land, about two hundred of which are fine level arable soil, of an excellent quality, in a good state of cultivation, and not surpassed by any on the river for fertility; the remainder is fine and thrifty timber land. The situation is the most eligible on the Hudson, extending one mile and a half on the river, with a bold shore and convenient dock, nearly opposite West-Point, and within fifty miles of New-York. The prospect is extensive and diversified, reaching from St. Anthony's Peak on the south, to the bay and city of Newburgh on the north. This estate can conveniently be divided into three farms, giving an equal proportion of front on the river, and of arable and timber land to each. Almost every enclosure is supplied with living springs of the purest water. There is on said estate a plain house, (formerly the head-quarters of Gen. Arnold;) also out-houses necessary to carry on the business of the farm. The single fact that during the whole time the cholera raged throughout the state, not one case occurred within ten miles of this place, is sufficient to prove the unrivalled salubrity of the situation. The facilities of intercourse with the city, that can be reached in four hours, by means of numerous steam-boats, are great, and daily increasing, both as regards pleasure, and the convenience of a near market for produce of every description.

For conditions of sale, apply to STEPHEN A. HALSEY, 189 Water-street, New-York, or RICHARD D. ARDEN, on the adjoining farm. Ardenia, 23d April, 1839. jdt

FROM THE STEAM PRESS OF
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